User Manual

Read and understand this manual before using machine.

INDUSTRIAL SHAPER

Model Numbers
48115
48120

C US

STEEL CITY TOOL WORKS

VER. 1.07

Manual Part No. OR73436

THANK YOU for purchasing your new Steel City Industrial Shaper. This shaper has been designed, tested, and inspected with you, the customer, in mind. When properly used and maintained, your shaper will provide you with years of trouble free service, which is why it is backed by one of the longest machinery warranties in the business.

This shaper is just one of many products in the Steel City's family of woodworking machinery and is proof of our commitment to total customer satisfaction.

At Steel City we continue to strive for excellence each and every day and value the opinion of you, our customer. For comments about your shaper or Steel City Tool Works, please visit our web site at **www.steelcitytoolworks.com** .

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INTRODUCTION

This user manual is intended for use by anyone working with this machine. It should be kept available for immediate reference so that all operations can be performed with maximum efficiency and safety. Do not attempt to perform maintenance or operate this machine until you have read and understand the information contained in this manual.

The drawings, illustrations, photographs, and specifications in this user manual represent your machine at time of print. However, changes may be made to your machine or this manual at any time with no obligation to Steel City Tool Works.

WARRANTY

STEEL CITY TOOL WORKS
5 YEAR LIMITED WARRANTY

Steel City Tool Works, LLC ("SCTW") warrants all "STEEL CITY TOOL WORKS" machinery to be free of defects in workmanship and materials for a period of 5 years from the date of the original retail purchase by the original owner. SCTW will repair or replace, at its expense and at its option, any SCTW machine, machine part, or machine accessory which in normal use has proven to be defective, provided that the customer returns the product, shipping prepaid, to an authorized service center with proof of purchase and provides SCTW with a reasonable opportunity to verify the alleged defect by inspection. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, or lack of maintenance, or to repairs or alterations made or specifically authorized by anyone other than SCTW. Normal wear components are also excluded under this coverage. Every effort has been made to ensure that all SCTW machinery meets the highest quality and durability standards. We reserve the right to change specifications at any time due to our commitment to continuous improvement of the quality of our products.

EXCEPT AS SET FORTH ABOVE, SCTW MAKES NO EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WITH RESPECT TO ITS MACHINERY, OR ITS CONDITION, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. SCTW FURNISHES THE ABOVE WARRANTIES IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY SPECIFICALLY DISCLAIMED.

SCTW SHALL NOT BE LIABLE FOR ANY (A) SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOSS OF PROFITS, ARISING FROM OR RELATED TO THIS WARRANTY, THE BREACH OF ANY AGREEMENT OR WARRANTY, OR THE OPERATION OR USE OF ITS MACHINERY, INCLUDING WITHOUT LIMITATION DAMAGES ARISING FROM DAMAGE TO FIXTURES, TOOLS, EQUIPMENT, PARTS OR MATERIALS, DIRECT OR INDIRECT LOSS CAUSED BY ANY OTHER PARTY, LOSS OF REVENUE OR PROFITS, FINANCING OR INTEREST CHARGES, AND CLAIMS BY ANY THIRD PERSON, WHETHER OR NOT NOTICE OF SUCH POSSIBLE DAMAGES HAS BEEN GIVEN TO SCTW; (B) DAMAGES OF ANY KIND FOR ANY DELAY BY OR FAILURE OF SCTW TO PERFORM ITS OBLIGATIONS UNDER THIS AGREEMENT; OR (C) CLAIMS MADE A SUBJECT OF A LEGAL PROCEEDING AGAINST SCTW MORE THAN ONE (1) YEAR AFTER SUCH CAUSE OF ACTION FIRST AROSE.

The validity, construction and performance of this Warranty and any sale of machinery by SCTW shall be governed by the laws of the Commonwealth of Pennsylvania, without regard to conflicts of laws provisions of any jurisdiction. Any action related in any way to any alleged or actual offer, acceptance or sale by SCTW, or any claim related to the performance of any agreement including without limitation this Warranty, shall take place in the federal or state courts in Allegheny County, Pennsylvania.

STEEL CITY TOOL WORKS

WARRANTY CARD

Name _____
Street _____
Apt. No. _____
City _____ State _____ Zip _____
Phone Number _____
E-Mail _____

Product Description: _____
Model No.: _____
Serial No. _____

The following information is given on a voluntary basis and is strictly confidential.

1. Where did you purchase your STEEL CITY machine?
   Store: _____
   City: _____

2. How did you first learn of Steel City Tool Works?
   ___ Advertisement ___ Mail Order Catalog
   ___ Web Site ___ Friend
   ___ Local Store Other_____

3. Which of the following magazines do you subscribe to?
   ___ American Woodworker ___ American How-To
   ___ Cabinetmaker ___ Family Handyman
   ___ Fine Homebuilding ___ Fine Woodworking
   ___ Journal of Light Construction ___ Old House Journal
   ___ Popular Mechanics ___ Popular Science
   ___ Popular Woodworking ___ Today's Homeowner
   ___ WOOD ___ Woodcraft
   ___ WOODEN Boat ___ Woodshop News
   ___ Woodsmith ___ Woodwork
   ___ Woodworker ___ Woodworker's Journal
   ___ Workbench Other_____

4. Which of the following woodworking / remodeling shows do you watch?
   ___ Backyard America ___ The American Woodworker
   ___ Home Time ___ The New Yankee Workshop
   ___ This Old House ___ Woodwright's Shop
   Other_____

5. What is your annual household income?
   ___ $20,000 to $29,999 ___ $30,000 to $39,999
   ___ $40,000 to $49,999 ___ $50,000 to $59,999
   ___ $60,000 to $69,999 ___ 70,000 to $79,999
   ___ $80,000 to $89,999 ___ $90,000 +

6. What is your age group?
   ___ 20 to 29 years ___ 30 to 39 years
   ___ 40 to 49 years ___ 50 to 59 years
   ___ 60 to 69 years ___ 70 + years

7. How long have you been a woodworker?
   ___ 0 to 2 years ___ 2 to 8 years
   ___ 8 to 20 years ___ over 20 years

8. How would you rank your woodworking skills?
   ___ Simple ___ Intermediate
   ___ Advance ___ Master Craftsman

9. How many Steel City machines do you own? _____

10. What stationary woodworking tools do you own?
    Check all that apply.
    ___ Air Compressor ___ Band Saw
    ___ Drill Press ___ Drum Sander
    ___ Dust Collection ___ Horizontal Boring Machine
    ___ Jointer ___ Lathe
    ___ Mortiser ___ Panel Saw
    ___ Planer ___ Power Feeder
    ___ Radial Arm Saw ___ Shaper
    ___ Spindle Sander ___ Table Saw
    ___ Vacuum Veneer Press ___ Wide Belt Sander
    Other_____

11. Which benchtop tools do you own? *Check all that apply.*
    ___ Belt Sander ___ Belt / Disc Sander
    ___ Drill Press ___ Band Saw
    ___ Grinder ___ Mini Jointer
    ___ Mini Lathe ___ Scroll Saw
    ___ Spindle / Belt Sander Other_____

12. Which portable / hand held power tools do you own?
    Check all that apply.
    ___ Belt Sander ___ Biscuit Jointer
    ___ Dust Collector ___ Circular Saw
    ___ Detail Sander ___ Drill / Driver
    ___ Miter Saw ___ Orbital Sander
    ___ Palm Sander ___ Portable Thickness Planer
    ___ Saber Saw ___ Reciprocating Saw
    ___ Router Other_____

13. What machines / accessories would you like to see added to the STEEL CITY line?
    _____
    _____

14. What new accessories would you like to see added?
    _____
    _____

15. Do you think your purchase represents good value?
    ___Yes ___ No

16. Would you recommend STEEL CITY products to a friend?
    ___ Yes ___ No

17. Comments:
    _____
    _____
    _____
    _____
    _____

CUT HERE

FOLD ON DOTTED LINE

PLACE
STAMP
HERE

Steel City Tool Works
P.O. Box 10529
Murfreesboro, TN 37129

FOLD ON DOTTED LINE

PRODUCT SPECIFICATIONS

Spindles Furnished	3/4", 1"
Spindle Speeds	7000 / 10,000 RPM
Capacity Under Nut	3 1/2"
Spindle Travel	3"
Table Size (with extension)	31" x 28 1/2"
Table Height	34 "
Insert Openings	1-3/8", 2-3/4", 4", 5"
Table T-Slot	3/4" x 3/8"
Forward and Reversing	Yes
Fence	Wood Laminate
Router Collet	Yes (1/4", 1/2")
Dust Port Size	4"

MOTOR

Type	Induction, TEFC
Horsepower	3HP
Amps	14
Voltage	230V
Phase	Single
Hertz	60
RPM	3450

PRODUCT DIMENSIONS

Footprint	23-1/4" x 20-3/4"
Width	28-1/2"
Depth	31"
Height	48"
Net Weight	370 lbs.

SHIPPING DIMENSIONS

Width	24-1/2"
Depth	29-1/2"
Height	40"
Gross Weight	395 lbs.

ACCESSORIES AND ATTACHMENTS

There are a variety of accessories available for your Steel City Product. For more information on any accessories associated with this and other machines, please contact your nearest Steel City distributor, or visit our website at: **www.steelcitytoolworks.com**.

DEFINITION OF TERMS

Arbor – A shaft, driven by the shaper motor that turns the cutting tools.

Collet – The sleeve that grips the shank of a router bit.

Featherboard – A piece of wood with thin "fingers" that hold a board against a fence or down against the table.

Fence – A straight guide used to keep a board a set distance from the cutterhead.

Kickback – When a workpiece is thrown back, in the opposite direction the cutter is turning.

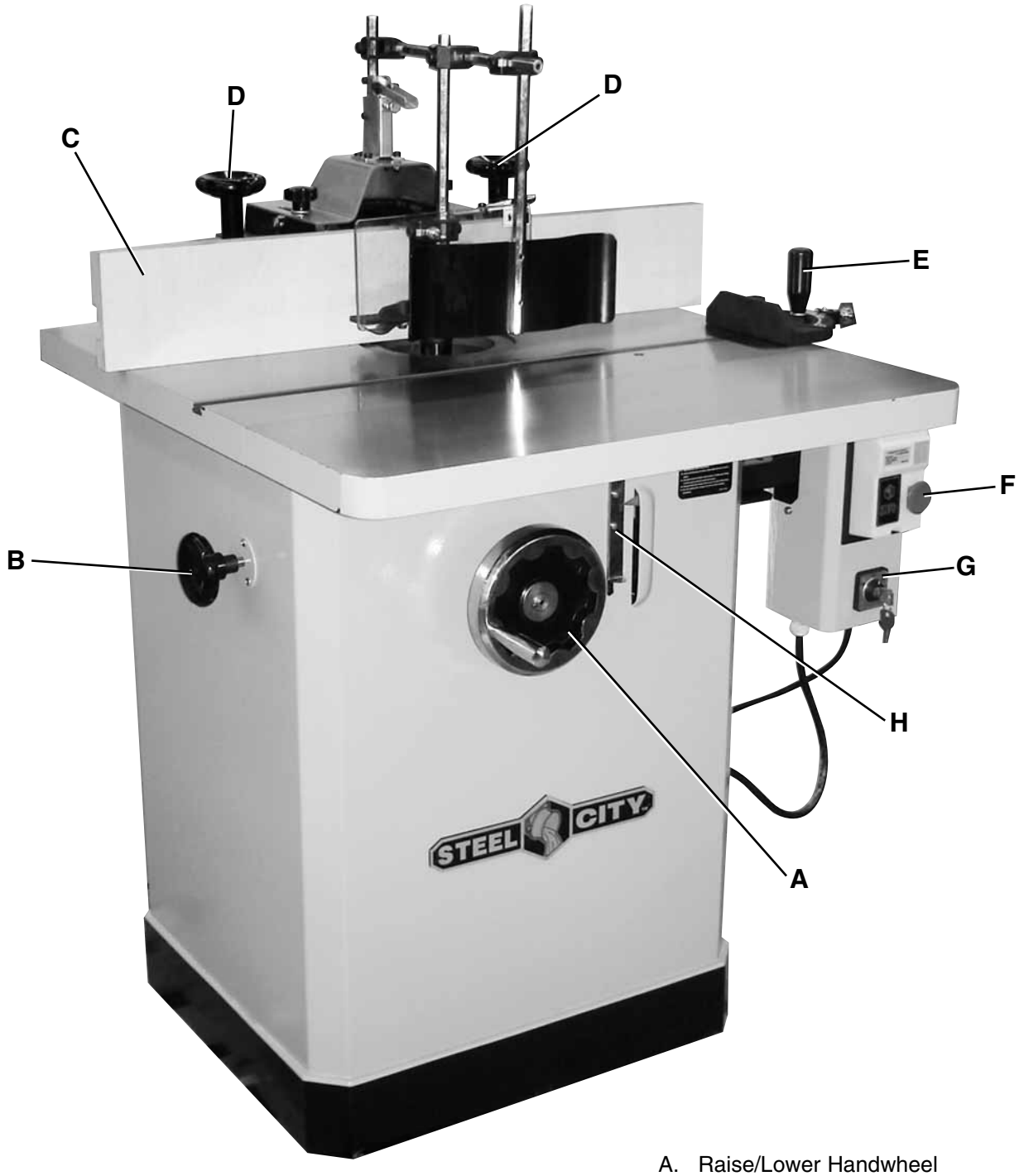
Miter gauge – A tool that slides in a slot on the table. A miter gauge can be adjusted to different angles and is used to slide the stock past the cutterhead.

Pitch – A sticky sap based residue that comes from wood products.

Runout – The amount of wobble in the spindle.

Template – A pattern to guide the marking or cutting of a shape.

FEATURE IDENTIFICATION



A. Raise/Lower Handwheel
B. Arbor Stabilizer Knob
C. Fence
D. Fence Lock Knobs
E. Miter Gauge
F. Power Switch
G. Cutterhead Rotation Switch
H. Adjustable Depth Scale

GENERAL SAFETY

⚠ WARNING

TO AVOID serious injury and damage to the machine, read and follow all Safety and Operating Instructions before assembling and operating this machine.

This manual is not totally comprehensive. It does not and can not convey every possible safety and operational problem which may arise while using this machine. The manual will cover many of the basic and specific safety procedures needed in an industrial environment.

All federal and state laws and any regulations having jurisdiction covering the safety requirements for use of this machine take precedence over the statements in this manual. Users of this machine must adhere to all such regulations.

Below is a list of symbols that are used to attract your attention to possible dangerous conditions.

⚠

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

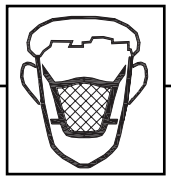
CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

⚠ WARNING



Exposure to the dust created by power sanding, sawing, grinding, drilling and other construction activities may cause serious and permanent respiratory or other injury, including silicosis (a serious lung disease), cancer, and death. Avoid breathing the dust, and avoid prolonged contact with dust. The dust may contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

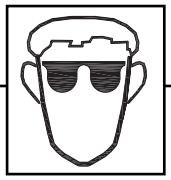
Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

Always operate tool in well ventilated area and provide for proper dust removal. Use a dust collection system along with an air filtration system whenever possible. Always use properly fitting NIOSH/OSHA approved respiratory protection appropriate for the dust exposure, and wash exposed areas with soap and water.

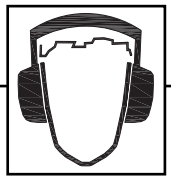
1. To avoid serious injury and damage to the machine, read the entire User Manual before assembly and operation of this machine.

⚠ WARNING



2. **ALWAYS** wear eye protection. Any machine can throw debris into the eyes during operations, which could cause severe and permanent eye damage. Everyday eyeglasses are **NOT** safety glasses. **ALWAYS** wear Safety Goggles (that comply with ANSI standard Z87.1) when operating power tools.

⚠ WARNING



3. **ALWAYS** wear hearing protection. Plain cotton is not an acceptable protective device. Hearing equipment should comply with ANSI S3.19 Standards.

⚠ WARNING

4. **ALWAYS** wear a NIOSH/OSHA approved dust mask to prevent inhaling dangerous dust or airborne particles.

5. **ALWAYS** keep the work area clean, well lit, and organized. **DO NOT** work in an area that have slippery floor surfaces from debris, grease, and wax.

6. **ALWAYS** unplug the machine from the electrical receptacle when making adjustments, changing parts or performing any maintenance.

7. **AVOID ACCIDENTAL STARTING**. Make sure that the power switch is in the "OFF" position before plugging in the power cord to the electrical receptacle.

⚠ WARNING

8. **AVOID** a dangerous working environment. **DO NOT** use electrical tools in a damp environment or expose them to rain or moisture.

⚠ WARNING

9. **CHILDPROOF THE WORKSHOP AREA** by removing switch keys, unplugging tools from the electrical receptacles, and using padlocks.

10. **DO NOT** use electrical tools in the presence of flammable liquids or gasses.

11. **DO NOT FORCE** the machine to perform an operation for which it was not designed. It will do a safer and higher quality job by only performing operations for which the machine was intended.

12. **DO NOT** stand on a machine. Serious injury could result if it tips over or you accidentally contact any moving part.

13. **DO NOT** store anything above or near the machine.

14. **DO NOT** operate any machine or tool if under the influence of drugs, alcohol, or medication.

15. **EACH AND EVERY** time, check for damaged parts prior to using any machine. Carefully check all guards to see that they operate properly, are not damaged, and perform their intended functions. Check for alignment, binding or breakage of all moving parts. Any guard or other part that is damaged should be immediately repaired or replaced.

16. Ground all machines. If any machine is supplied with a 3-prong plug, it must be plugged into a 3-contact electrical receptacle. The third prong is used to ground the tool and provide protection against accidental electric shock. **DO NOT** remove the third prong.

17. Keep visitors and children away from any machine. **DO NOT** permit people to be in the immediate work area, especially when the machine is operating.

18. **KEEP** protective guards in place and in working order.

19. **MAINTAIN** your balance. **DO NOT** extend yourself over the tool. Wear oil resistant rubber soled shoes. Keep floor clear of debris, grease, and wax.

20. **MAINTAIN** all machines with care. **ALWAYS KEEP** machine clean and in good working order. **KEEP** all blades and tool bits sharp.

21. **NEVER** leave a machine running, unattended. Turn the power switch to the OFF position. **DO NOT** leave the machine until it has come to a complete stop.

22. **REMOVE ALL MAINTENANCE TOOLS** from the immediate area prior to turning the machine ON.

23. **SECURE** all work. When it is possible, use clamps or jigs to secure the workpiece. This is safer than attempting to hold the workpiece with your hands.

24. **STAY ALERT**, watch what you are doing, and use common sense when operating any machine. **DO NOT** operate any machine tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

25. **USE ONLY** recommended accessories. Use of incorrect or improper accessories could cause serious injury to the operator and cause damage to the machine. If in doubt, **DO NOT** use it.
26. **THE USE** of extension cords is not recommended for 230V equipment. It is better to arrange the placement of your equipment and the installed wiring to eliminate the need for an extension cord. If an extension cord is necessary, refer to the chart in the Grounding Instructions section to determine the minimum gauge for the extension cord. The extension cord must also contain a ground wire and plug pin.
27. Wear proper clothing, **DO NOT** wear loose clothing, gloves, neckties, or jewelry. These items can get caught in the machine during operations and pull the operator into the moving parts. Users must wear a protective cover on their hair, if the hair is long, to prevent it from contacting any moving parts.
28. **SAVE** these instructions and refer to them frequently and use them to instruct other users.
29. Information regarding the safe and proper operation of this tool is also available from the following sources:

    Power Tool Institute
    1300 Summer Avenue
    Cleveland, OH 44115-2851
    www.powertoolinstitute.org

    National Safety Council
    1121 Spring Lake Drive
    Itasca, IL 60143-3201

    American National Standards Institute
    25 West 43rd Street, 4th floor
    New York, NY 10036
    www.ansi.org

    ANSI 01.1 Safety Requirements for Woodworking Machines, and the U.S. Department of Labor regulations
    www.osha.gov

PRODUCT SAFETY

1. Serious personal injury may occur if normal safety precautions are overlooked or ignored. Accidents are frequently caused by lack of familiarity or failure to pay attention. Obtain advice from supervisor, instructor, or another qualified individual who is familiar with this machine and its operations.
2. Every work area is different. Always consider safety first, as it applies to your work area. Use this machine with respect and caution. Failure to do so could result in serious personal injury and damage to the machine.
3. Prevent electrical shock. Follow all electrical and safety codes, including the National Electrical Code (NEC) and the Occupational Safety and Health Regulations (OSHA). All electrical connections and wiring should be made by qualified personnel only.

⚠ WARNING

4. **TO REDUCE** the risk of electrical shock. **DO NOT** use this machine outdoors. **DO NOT** expose to rain or moisture. Store indoors in a dry area.

5. **STOP** using this machine, if at any time you experience difficulties in performing any operation. Contact your supervisor, instructor or machine service center immediately.
6. Safety decals are on this machine to warn and direct you to how to protect yourself or visitors from personal injury. These decals **MUST** be maintained so that they are legible. **REPLACE** decals that are not legible.
7. **DO NOT** leave the unit plugged into the electrical outlet. Unplug the unit from the outlet when not in use and before servicing, performing maintenance tasks, or cleaning.
8. **ALWAYS** turn the power switch “OFF” before unplugging the shaper.

⚠ WARNING

9. **DO NOT** handle the plug or shaper with wet hands.

10. **USE** accessories only recommended by Steel City.
11. **DO NOT** pull the shaper by the power cord. **NEVER** allow the power cord to come in contact with sharp edges, hot surfaces, oil or grease.
12. **DO NOT** unplug the shaper by pulling on the power cord. **ALWAYS** grasp the plug, not the cord.
13. **REPLACE** a damaged cord immediately. **DO NOT** use a damaged cord or plug.

14. **DO NOT** use the shaper as a toy. **DO NOT** use near or around children.
15. **KEEP** hands away from cutting tool.
16. **NEVER** run stock between the fence and the cutter.
17. **ALWAYS** use a miter gauge and clamp attachment when shaping small pieces. The fence should be removed during this operation.
18. **ALWAYS** feed against the rotation of the cutter.
19. The wooden fence halves **SHOULD BE** adjusted endwise so the opening is never more than is required to clear the cutter.
20. **KEEP** cutters sharp and free from rust and pitch.
21. **ONLY** use flat workpieces in the shaper, never use warped or twisted lumber.
22. **NEVER** take off too much material in one pass. Make several lighter passes.
23. **SET UP** operations whenever possible to have the cutters under the workpiece.
24. When shaping with a starting pin and rub collar, **BE SURE** that the workpiece is of sufficient size to insure control. It is best to shape a larger piece and then cut to size on a table saw.
25. **BE SURE** that there is sufficient bearing surface of the workpiece on the rub collar to insure support throughout the operation.
26. **MAKE SURE** cutters are properly secured before starting shaper.
27. **USE** guards, guides, and hold-down wherever possible.
28. **ALWAYS** use proper speed setting for the cutter being used.
29. **DO NOT** perform any operation freehand. Use the fence for straight shaping, the miter gauge for end shaping, and a starting pin and collar for curve shaping.

ELECTRICAL REQUIREMENTS

⚠ WARNING

To reduce the risk of electric shock, follow all electrical and safety codes, including the National Electric Code (NEC) and the Occupational Safety and Health Regulations (OSHA). All electrical connections and wiring should be made by qualified personnel only.

The switch provided with your shaper is designed for 230 volt single phase usage only. The switch has a plug that is designed to plug into a 230 volt outlet. There are many different configurations for 230 volt outlets, so it is conceivable that the configuration of the plug may not match the configuration of your existing outlet. If this is the case, you will have to replace the plug with a UL/CSA approved plug that matches the configuration of your 230V outlet.

GROUNDING INSTRUCTIONS

⚠ WARNING

This machine **MUST BE GROUNDED** while in use to protect the operator from electric shock.

In the event of a malfunction or breakdown, **GROUNDING** provides the path of least resistance for electric current and reduces the risk of electric shock. The plug **MUST** be plugged into a matching electrical receptacle that is properly installed and grounded in accordance with **ALL** local codes and ordinances.

If a plug is provided with your machine **DO NOT** modify the plug. If it will not fit your electrical receptacle, have a qualified electrician install the proper connections to meet all electrical codes local and state. All connections must also adhere to all of OSHA mandates.

IMPROPER ELECTRICAL CONNECTION of the equipment-grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment-grounding conductor. **DO NOT** connect the equipment-grounding conductor to a live terminal if repair or replacement of the electric cord or plug is necessary.

Check with a qualified electrician or service personnel if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

PLUGS/RECEPTACLES

⚠ WARNING

- Electrocution or fire could result if this machine is not grounded properly or if the electrical configuration does not comply with local and state electrical codes.
- **MAKE CERTAIN** the machine is disconnected from power source before starting any electrical work.
- **MAKE SURE** the circuit breaker does not exceed the rating of the plug and receptacle.

The motor supplied with your machine is a 230 volt, single phase motor. Never connect the green or ground wire to a live terminal.

A machine with a 230 volt plug should only be connected to an outlet having the same configuration as the plug.

EXTENSION CORDS

⚠ WARNING

To reduce the risk of fire or electrical shock, use the proper gauge of extension cord. When using an extension cord, be sure to use one heavy enough to carry the current your machine will draw.

The smaller the gauge-number, the larger the diameter of the extension cord is. If in doubt of the proper size of an extension cord, use a shorter and thicker cord. An undersized cord will cause a drop in line voltage resulting in a loss of power and overheating.

⚠ CAUTION

USE ONLY a 3-wire extension cord that has a 3-prong grounding plug and a 3-pole receptacle that accepts the machine's plug.

If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.

Make certain the extension cord is properly sized, and in good electrical condition. Always replace a worn or damaged extension cord immediately or have it repaired by a qualified person before using it.

Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

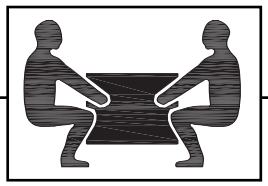
MINIMUM RECOMMENDED GAUGE FOR EXTENSION CORDS (AWG)

230 VOLT OPERATION ONLY

	25' LONG	50' LONG	100' LONG
0 to 6 Amps	16 AWG	16 AWG	14 AWG
6 to 8 Amps	16 AWG	16 AWG	12 AWG
8 to 12 Amps	14 AWG	14 AWG	10 AWG
12 to 15 Amps	12 AWG	12 AWG	10 AWG
15 to 20 Amps	10 AWG	10 AWG	Not recommended

UNPACKING & INVENTORY

⚠ WARNING



- The machine is heavy, two people are required to unpack and lift.
- Use a safety strap to avoid tip over when lifting machine.

Check shipping carton and machine for damage before unpackaging. Carefully remove packaging materials, parts and machine from shipping carton. Always check for and remove protective shipping materials around motors and moving parts. Lay out all parts on a clean work surface.

Remove any protective materials and coatings from all of the parts and the shaper. The protective coatings can be removed by spraying WD-40 on them and wiping it off with a soft cloth. This may need redone several times before all of the protective coatings are removed completely.

After cleaning, apply a good quality paste wax to any unpainted surfaces. Make sure to buff out the wax before assembly.

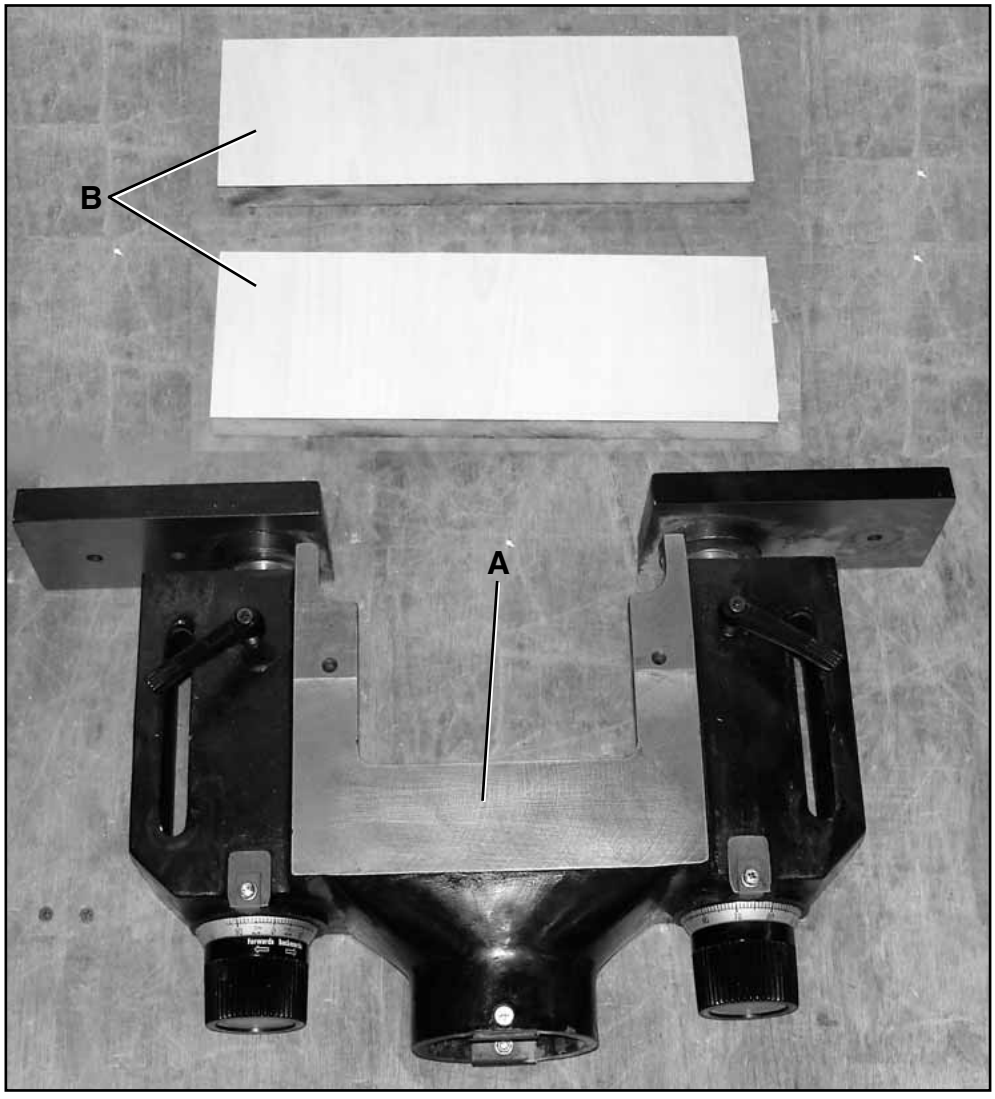
Compare the items to inventory figures; verify that all items are accounted for before discarding the shipping box.

⚠ WARNING

If any parts are missing, do not attempt to plug in the power cord and turn “ON” the machine. The machine should only be turned “ON” after all the parts have been obtained and installed correctly. For missing parts, contact Steel City at 1-877-SC4-TOOL.

A. Main Fence Casting

B. Laminated Fence Halves (2)



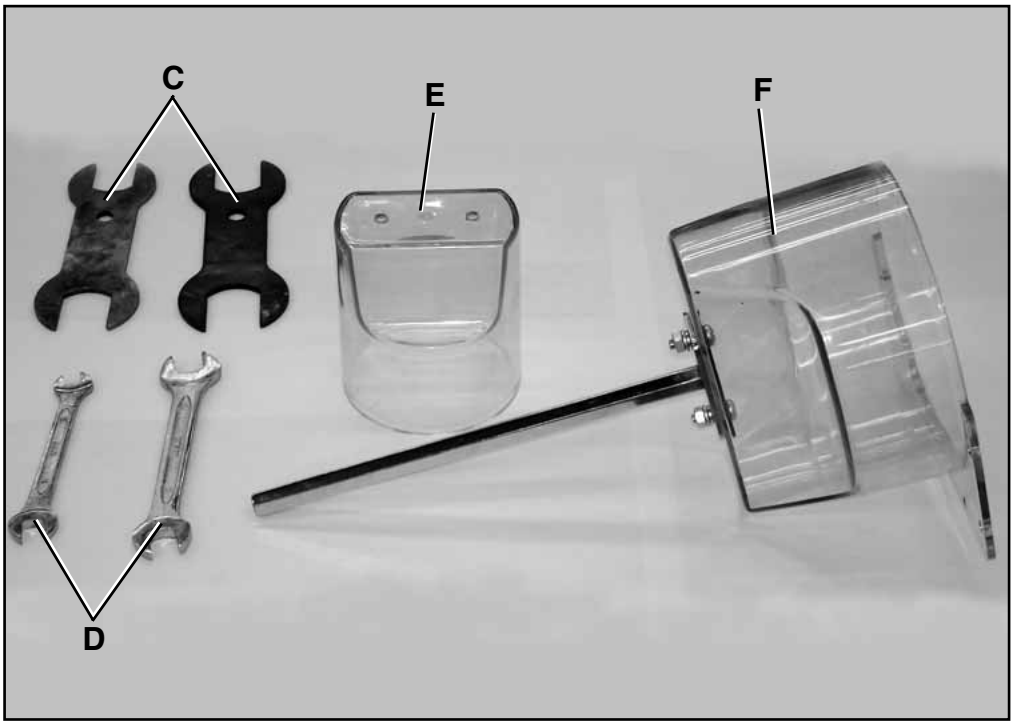
C. Spindle Wrenches (2)

D. Open End Wrenches (2)

E. 3-1/2-in Overhead Guard

F. 6-in Overhead Guard with Mounting Rod and Fasteners

NOTE: Rod and fasteners are interchangeable and are to be used on both overhead guards.



G. M6 x 20 socket head cap screw (4)

H M6 Nylock Hex Nut (4)

I. M6 Lock Washer (4)

J. M6 Flat Washer (4)

K. Mounting Post

L. Draw Bar

M. Router Collett

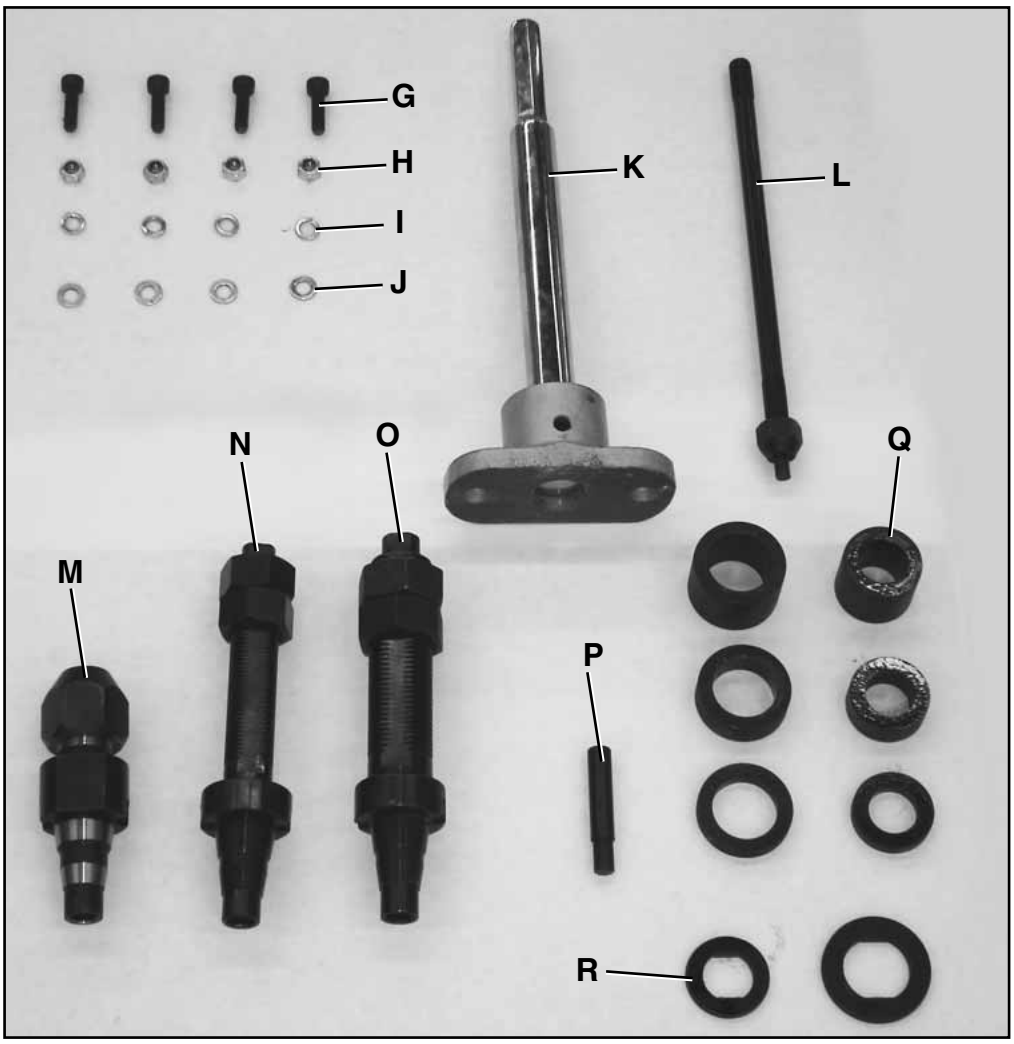
N. 3/4-in. Spindle

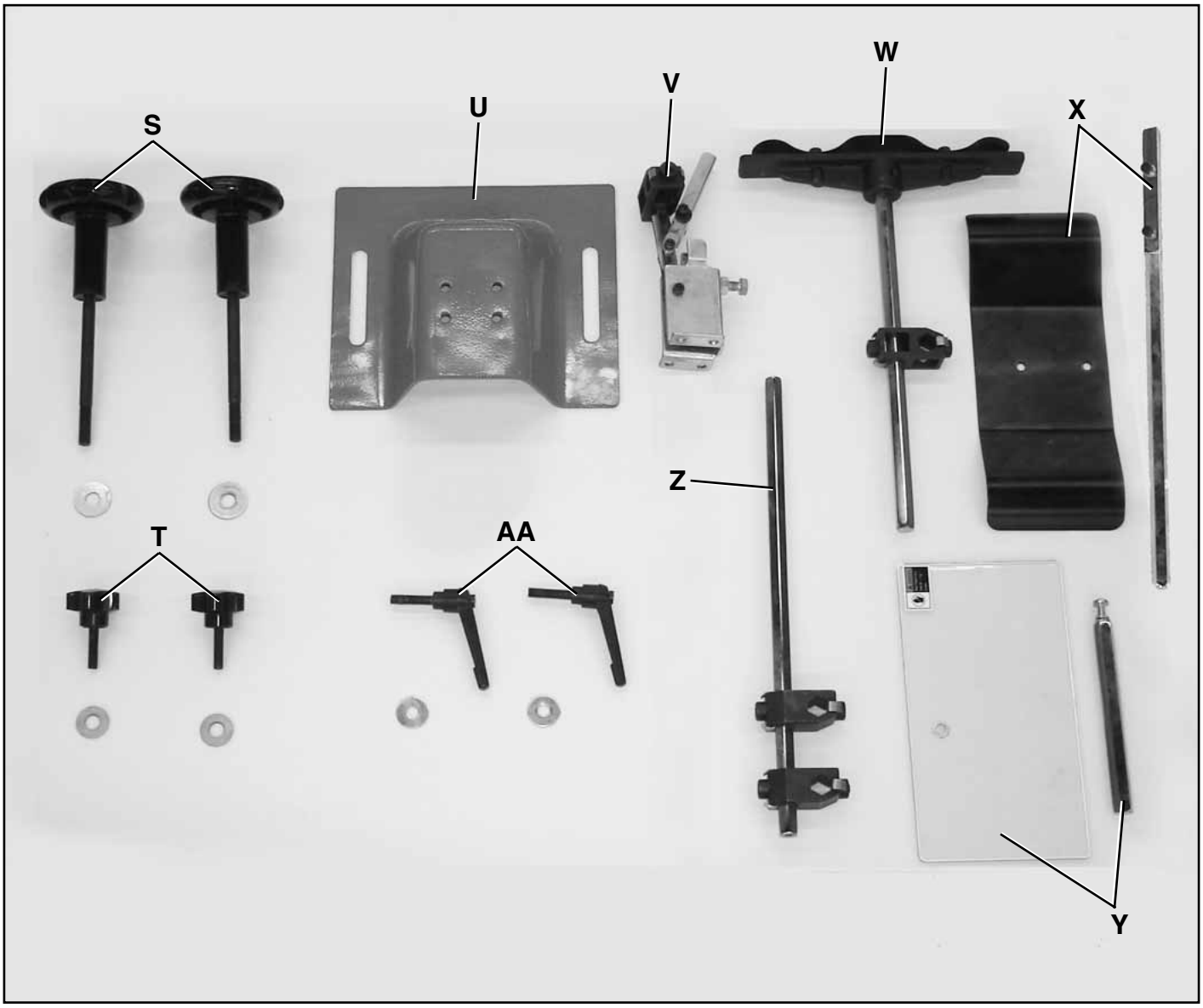
O. 1-in. Spindle

P. Starting Pin

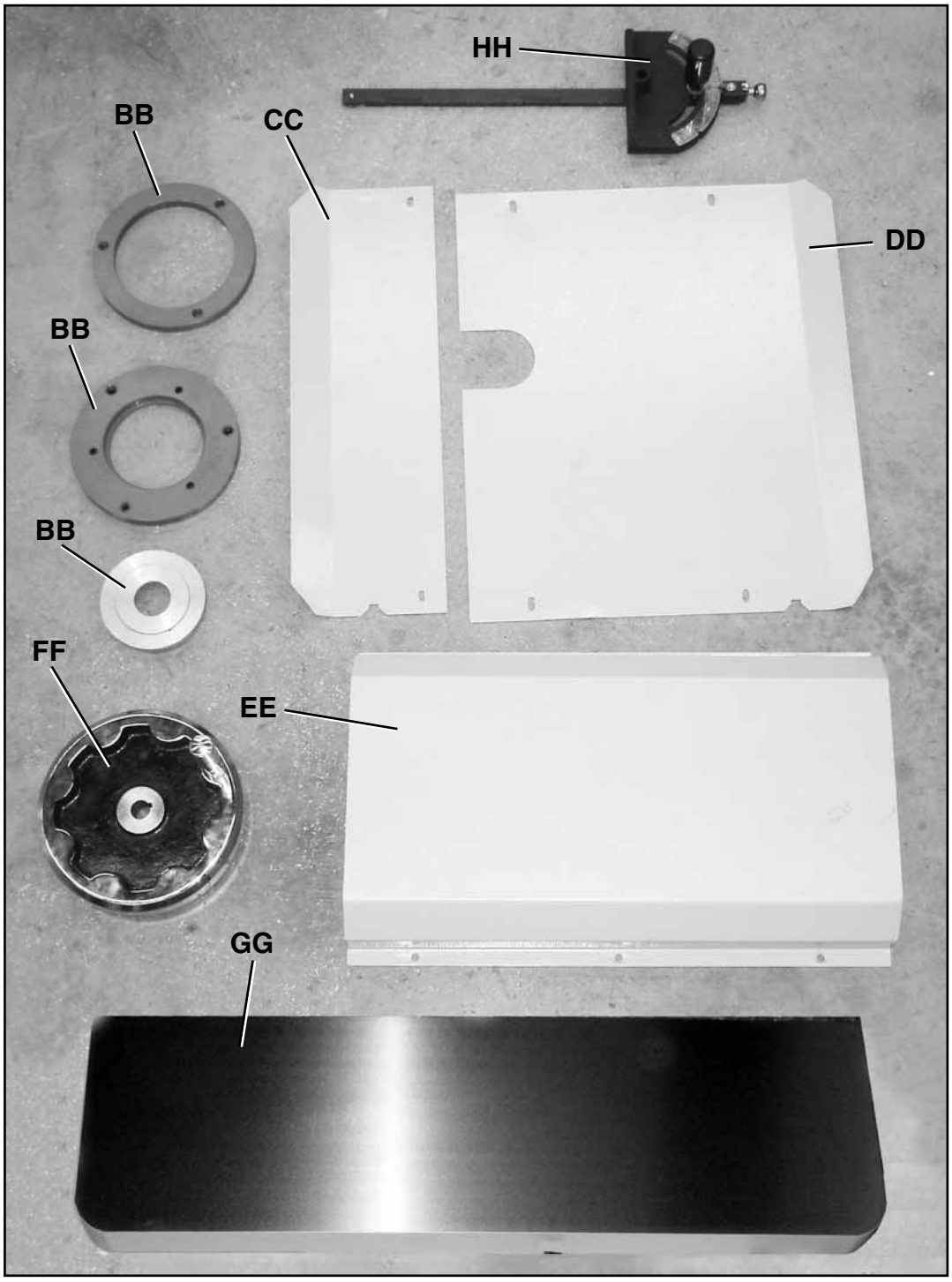
Q. Spacers (6)

R. Special Washer (2)





S. Fence Lock Knobs with Flat Washers
T. Top Cover Lock Knobs with Flat Washers
U. Top Cover
V. Guard Mounting Bracket
W. Hold Down Bracket
X. Barrier Guard with Shaft
Y. Chip Deflector with Shaft
Z. Extension Rod
AA. Lock Handles with Flat Washers (2)



BB. Table Inserts (3)

CC. Dust Chute (Small Half)

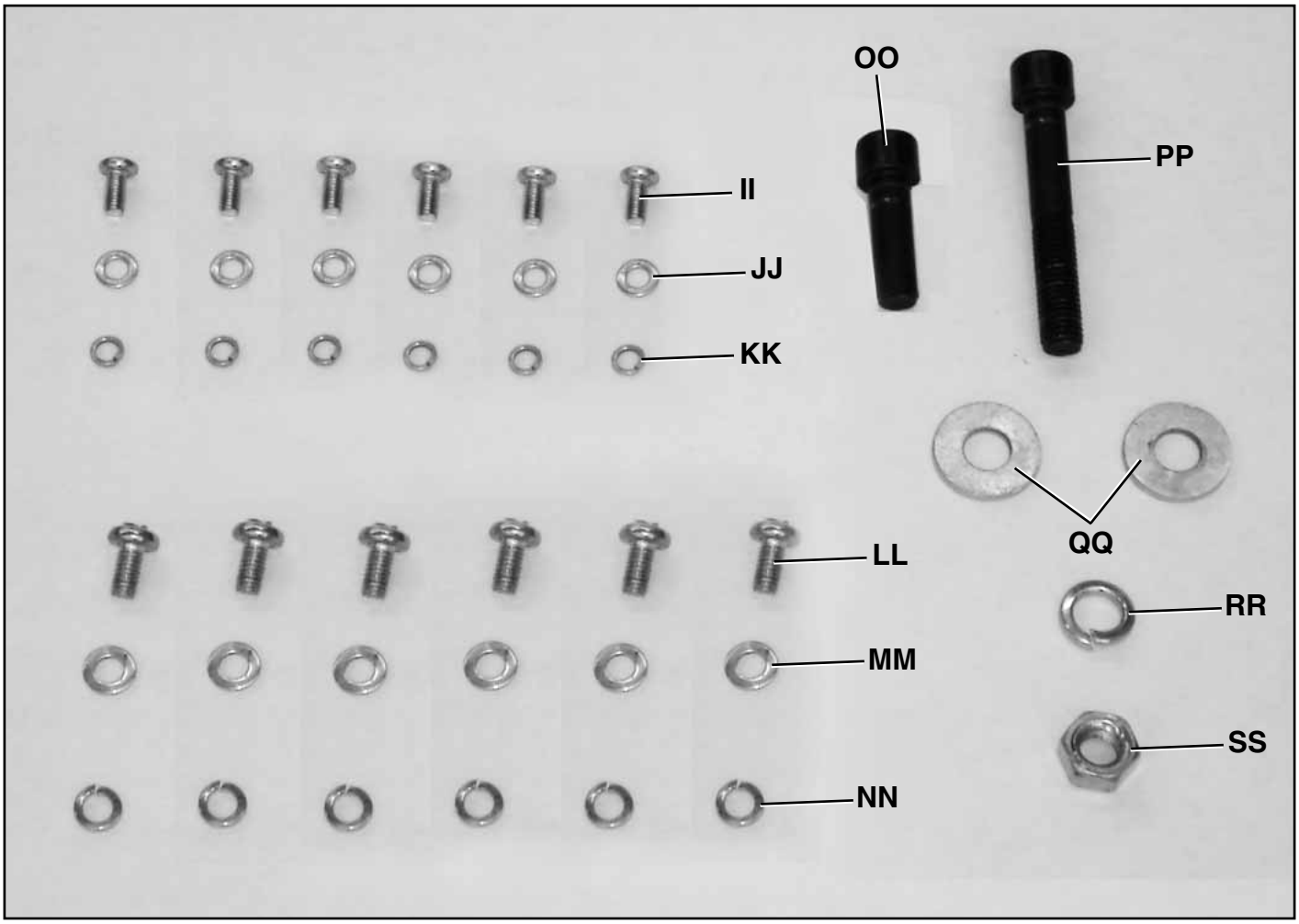
DD. Dust Chute (Large Half)

EE. Motor Cover

FF. Handwheel

GG. Extension Wing

HH. Miter Gauge Assembly



II. M5 x 10mm Pan Head Screw(6)

JJ. M5 Flat Washer(6)

KK. M5 Lock Washer(6)

LL. M6 x 12mm Pan Head Screw(6)

MM. M6 Flat Washer(6)

NN. M6 Lock Washer(6)

OO. M8 x 20mm Socket Head Cap Screw

PP. M10 x 65mm Socket Head Cap Screw

QQ. M10 Flat Washer(2)

RR. M10 Lock Washer

SS. M10 Hex Nut

ASSEMBLY

Before beginning assembly, take note of the following precautions and suggestions

The shaper is bolted to the pallet. Before attempting any of the assembly procedures remove all of the loose parts and hardware from the inside of the shaper and unbolt the machine from the pallet.

⚠CAUTION

FLOOR

This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting both the weight of the machine and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.

WORKING CLEARANCES

Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.

OUTLET PLACEMENT

Outlets should be located close enough to the machine so that the power cord or extension cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

⚠WARNING

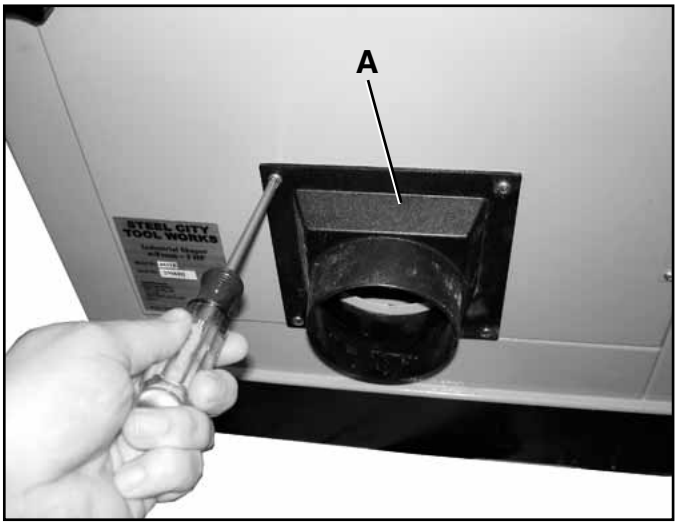
- **DO NOT** assemble the Shaper until you are certain that the machine is not plugged in and the power switch is in the OFF position.
- **DO NOT** connect the machine to the power source until the machine is completely assembled and you read and understand the entire User Manual.

DUST COLLECTION

Since the Shaper generates a large amount of dust and wood shavings, using an appropriate Dust Collection system is highly recommended. Make certain to construct your ducting to achieve optimum airflow and allow for adequate working clearances.

In order to connect to a dust collection system, you will need to attach the dust port (A) to the rear of the machine using four M5 x 10mm pan head screws. **SEE FIG. 1.**

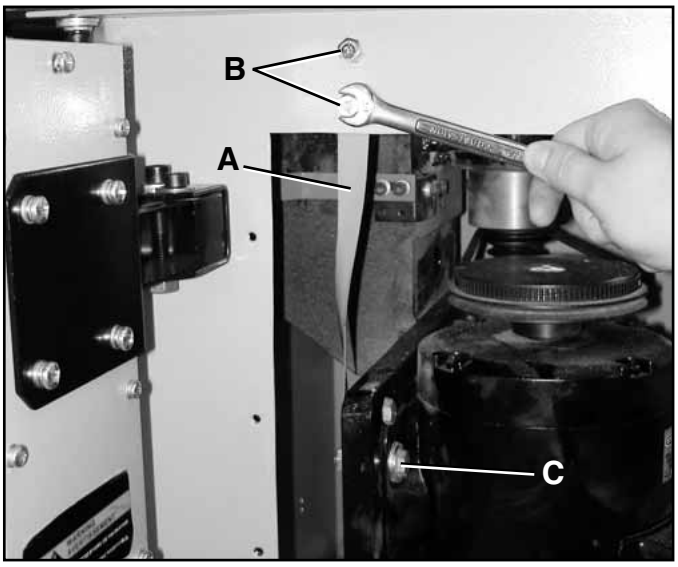
Fig. 1



REMOVING SHIPPING STRAP

There is a metal strap (A) located inside of the cabinet that is bolted to both the motor and the cabinet to help prevent damage during shipping. This strap must be removed prior to operating the shaper. **SEE FIG. 2.**

Fig. 2



To remove:

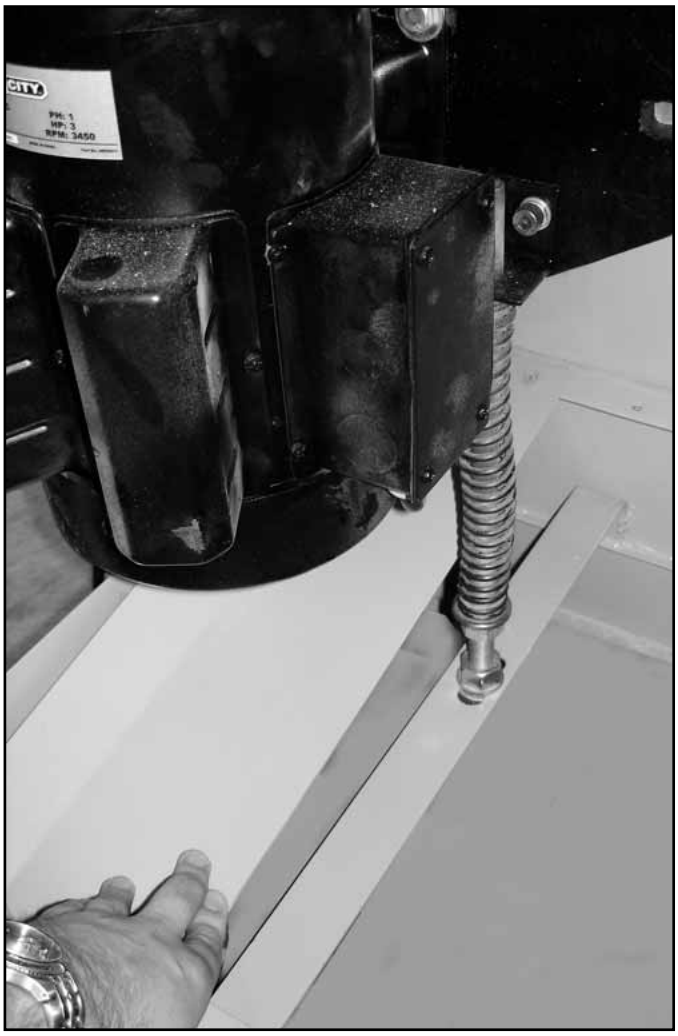
1. Remove the two hex head cap screws (B) located on the outside of the shaper. **SEE FIG. 2.**
2. A third bolt (C) is located behind the motor attaching the lower end of the strap to the motor plate. Remove using an open end wrench

INSTALLING DUST CHUTE

The dust chute comes in two halves. The smaller piece fits to the left of the shaft and the larger piece with the notch cut out, goes to the right of the shaft. To install:

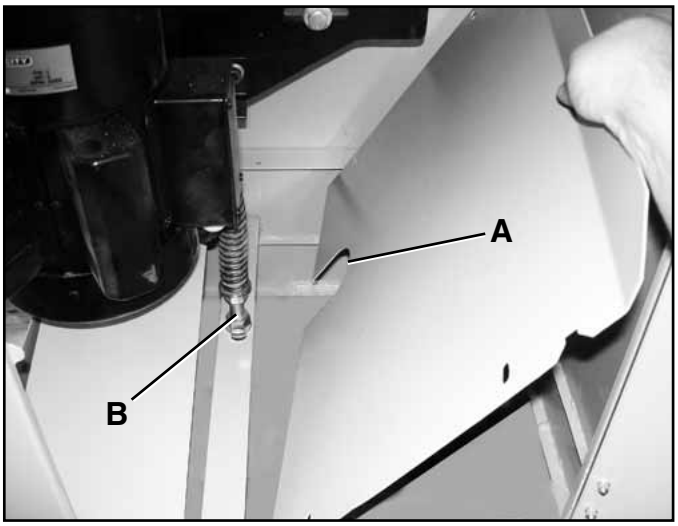
1. Insert the smaller half of the dust chute into the cabinet and fasten using two M5 x 10mm pan head screws, two M5 lock washers, and two M5 flat washers. **SEE FIG. 3.**

Fig. 3



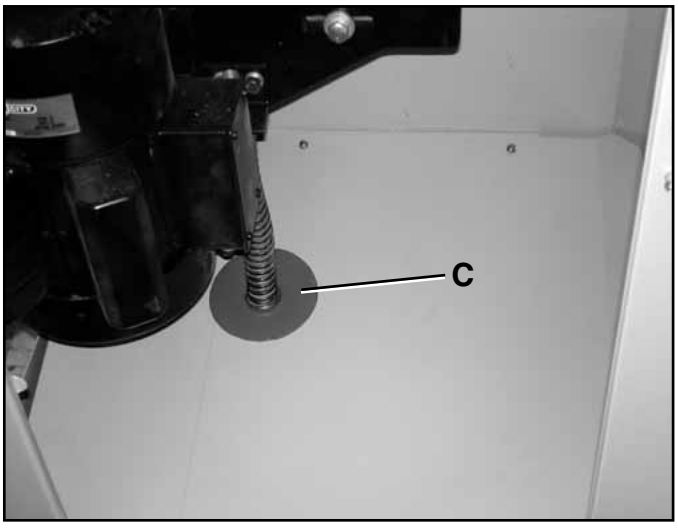
2. Install the larger half of the dust chute, making sure that the notch (A) lines up with the shaft (B). Fasten into place using four M5 x 10mm pan head screws, four M5 lock washers, and four M5 flat washers. **SEE FIG. 4.**

Fig. 4



3. Once dust chute is installed, place rubber boot (C) around the shaft. **SEE FIG. 5.**

Fig. 5

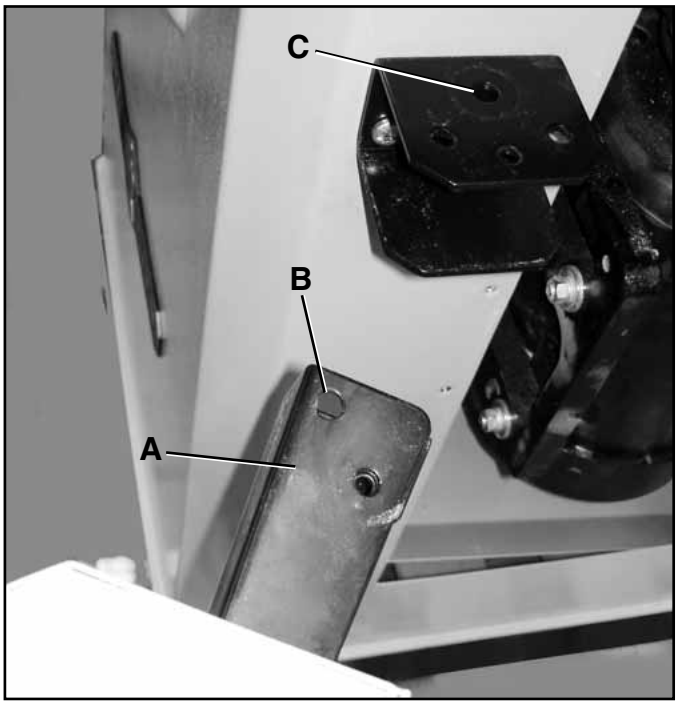


ATTACHING SWITCH

The switch is designed to be mounted on a swivel arm so that it can be put in various positions depending on the job. To attach

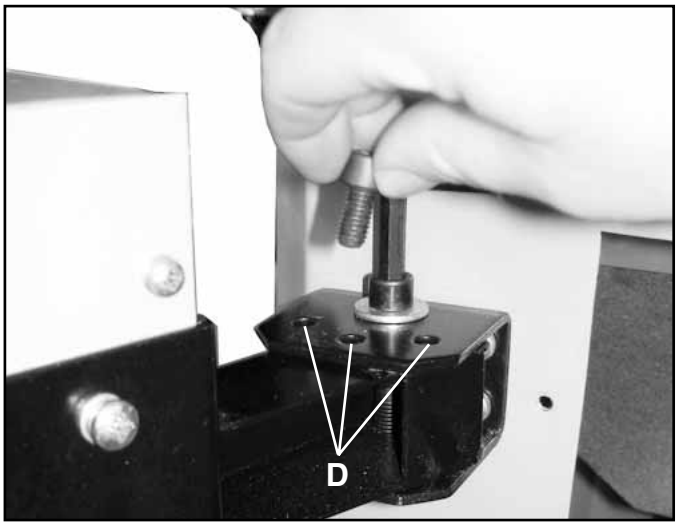
1. Insert the arm (A) into the bracket on the saw and line up the hole on the arm (B) with the hole on the bracket (C). **SEE FIG. 6.**

Fig. 6



2. Fasten the swivel arm to the bracket using one M10 x 65mm Socket Head Cap Screw, two M10 flat washers, one M10 lock washer, and one M10 hex nut.
3. Position the swivel arm so that the other hole in the swivel arm lines up with one of the three holes in the bracket (D) and secure in place using one M8 x 20mm socket head cap screw. **SEE FIG. 7.**

Fig. 7



INSTALLING MOTOR COVER

The motor cover provides easy access to the motor and is located on the side of the shaper. Once all of the internal parts of the shaper have been assembled, you can install the motor cover. Attach the motor cover to the cabinet using six M6 x 12mm pan head screws, six M6 lock washers and six M6 flat washers. **SEE FIG. 8.**

Fig. 8

ATTACHING EXTENSION WING

The shaper has one extension wing that needs to be mounted before it can be operated.

To install:

1. Attach the extension wing to the table using three M10 x 35MM socket head cap screws, three M10 lock washers, and three M10 flat washers.
2 Slide the extension wing until the front of the wing is flush with the main table.
3. Using a straight edge, align the extension wing to the table and securely tighten the three socket head cap screws. **SEE FIG 9**.

Fig. 9

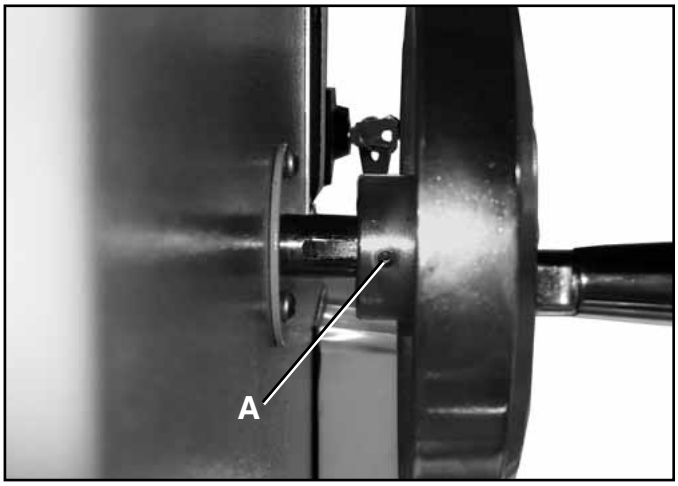
ATTACHING HANDWHEEL

The handwheel is used to raise and lower the spindle.

To install:

1. Line up the keyway in the handwheel with the key on the shaft.
2. Insert handwheel over the shaft.
3. Secure handwheel to the shaft by tightening set screw (A). **SEE FIG 10.**

Fig. 10



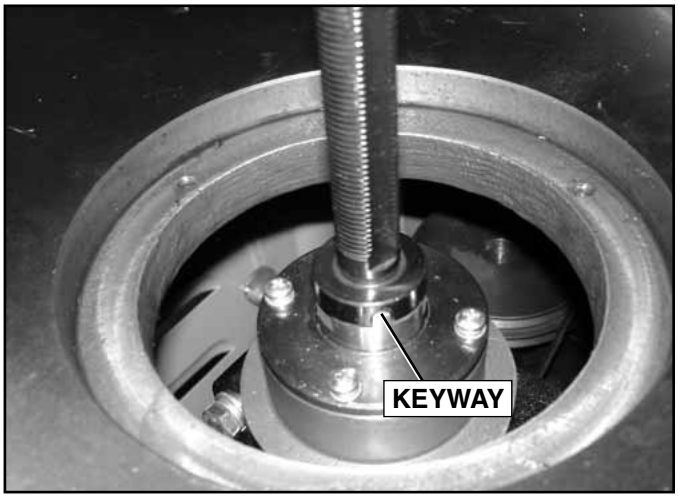
INSTALLING SPINDLE

⚠ WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

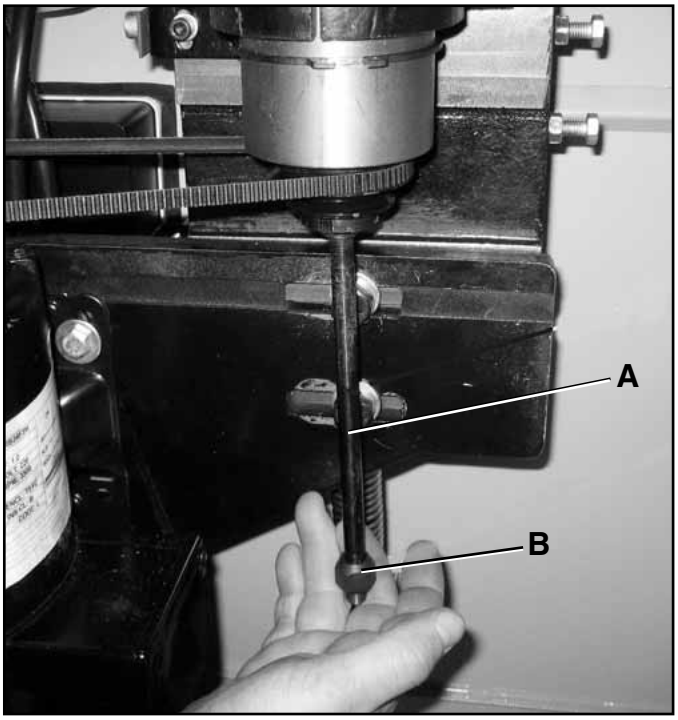
1. Select the appropriate spindle for your shaping operation. This Shaper comes equipped with a 3/4" spindle, a 1" spindle, and a router collet that accepts 1/4" and 1/2" router bits.
2. Insert the end of the spindle into quill of the shaper. **MAKE CERTAIN** to align the keyway in the spindle with the tab on the quill. **SEE FIG 11.**

Fig. 11



3. Insert the draw bar (A) through the bottom of the quill, making sure that the beveled edge of the drawbar nut (B) is facing upwards. **SEE FIG 12.**

Fig. 12



4. Use the spindle wrench to hold the top flats on the spindle while tightening the draw bar nut using an open end wrench. **SEE FIG 13.**

Fig. 13

SETTING TABLE INSERTS

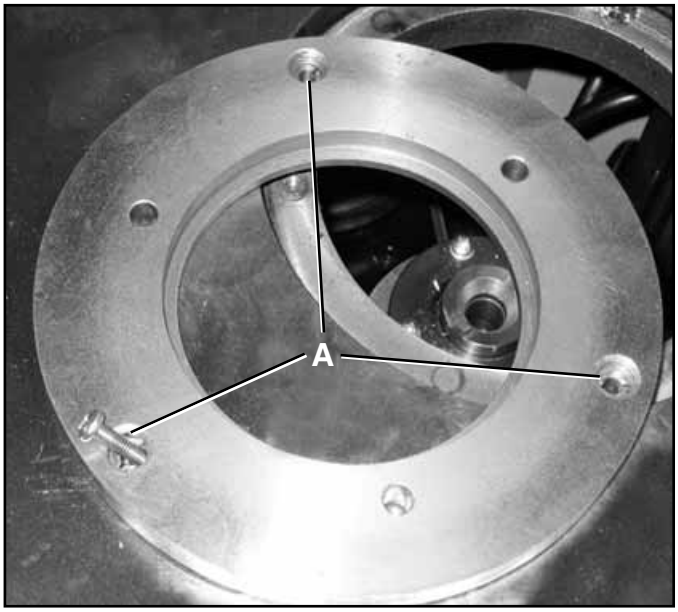
The table inserts are preinstalled at the factory. They should be adjusted so that the top surface of the insert is level with the tabletop. If any adjustment is necessary:

⚠ WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

1. Remove the three screws in the top of the insert.
2. With the screws removed, you can see the three insert leveling screws (A). **SEE FIG 14.**

Fig. 14



3. Using a 6mm hex wrench, turn the adjusting screws so that the insert sits flush with the table.
4. Replace the screws removed in step 1.

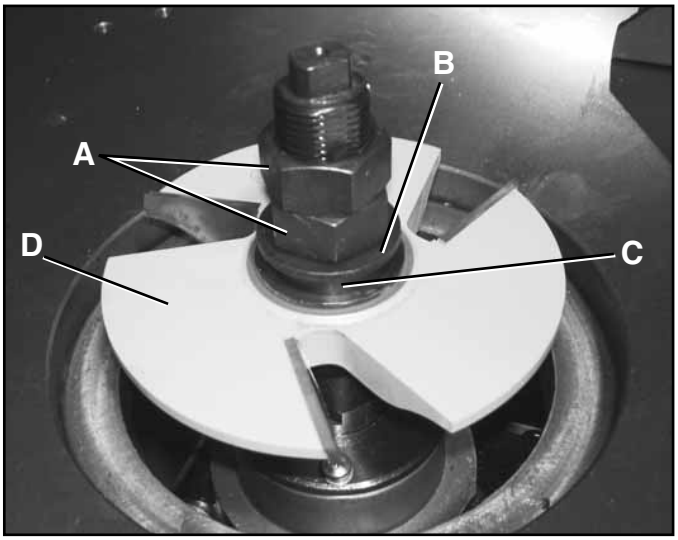
ATTACHING CUTTERS AND COLLARS TO SPINDLES

⚠ WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

1. When attaching a cutter, remember to position the cutter as close to the bottom of the spindle as possible.
2. Remove both spindle nuts (A) and special washer (B). **SEE FIG 15.**

Fig. 15



3. Decide which collars you will need to use, if any, and place over the spindle.
4. Attach the cutter (D) to the spindle.
5. Add collar (if any) and then attach the special washer (B). Figure 15 shows a collar (C) installed above the cutter.

⚠ WARNING

MAKE CERTAIN that the special washer goes on just before you replace the spindle nuts. This washer prevents the spindle nut(s) from loosening if the cutter is stalled.

6. Replace spindle nuts (A) and tighten using the spindle wrenches.

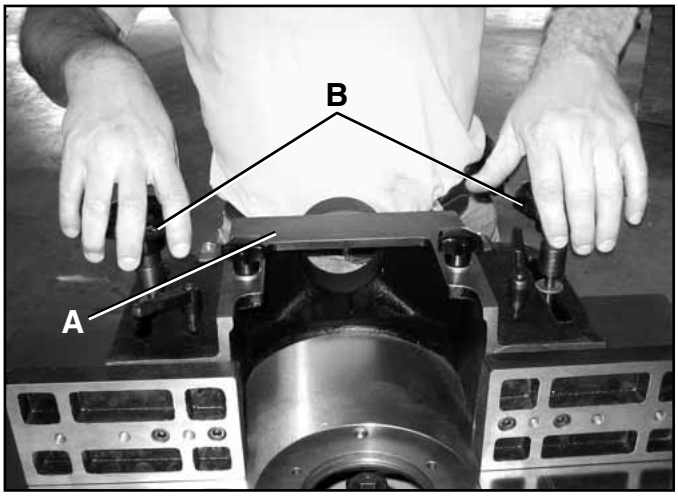
ASSEMBLING FENCE

⚠WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

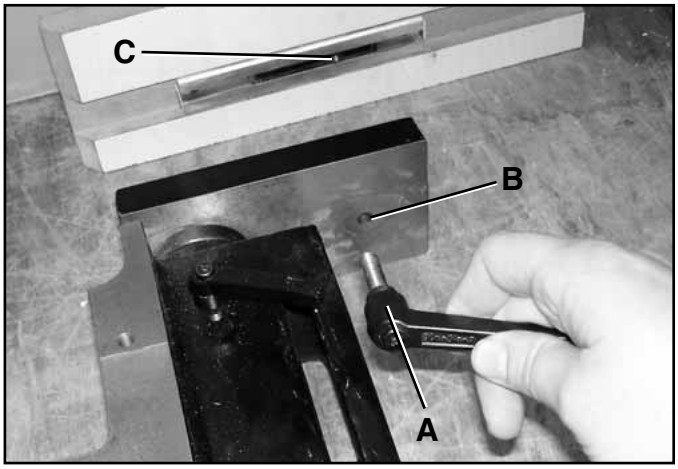
1. Install the fence by placing the main fence casting (A) on the table surface. **SEE FIG 16.**

Fig. 16



2. Use the two locking handles (B) provided to secure the fence casting to the table by threading the handles into the holes in the table located slightly behind the spindle opening.
3. Attach the laminated wooden fence halves by placing one flat washer (not shown) over the fence lock knob (A), insert the handle through the hole (B) in the fence, and thread into the bracket on the back of the laminated wooden fence half. **SEE FIG. 17.**

Fig. 17

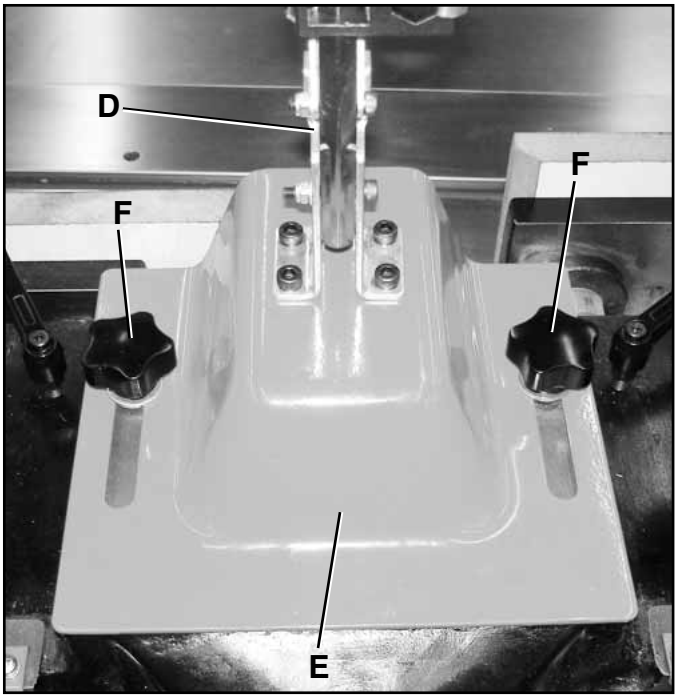


4. Tighten fence lock knob until the fence half is securely in place.

NOTE: The fence lock handles are spring loaded and can be adjusted by pulling out on the handle and repositioning on the shaft.

5. Repeat steps 3-4 to attach the remaining fence half.
6. Attach Guard Mounting Bracket (D) to the Top Cover (E) using four M6 x 20mm Socket Head Cap Screws, four M6 flat washers, four M6 lock washers, and four M6 Nylock hex nuts. **SEE FIG. 18.**

Fig. 18



7. With the Guard Mounting Bracket now attached to the Top Cover, fasten the top cover to the fence casting using the two supplied Lock Knobs (F) and flat washers.
8. There are several types of guards that should be attached to the shaper fence depending on the operation that you are performing. Figures 19 and Fig 20 show how the Barrier Guard (G), the Hold Down Bracket (H), the Chip Deflector (I), and the Overhead Guard(J) are attached to the Fence Assembly **SEE FIGS. 19 and 20.**

Fig. 19

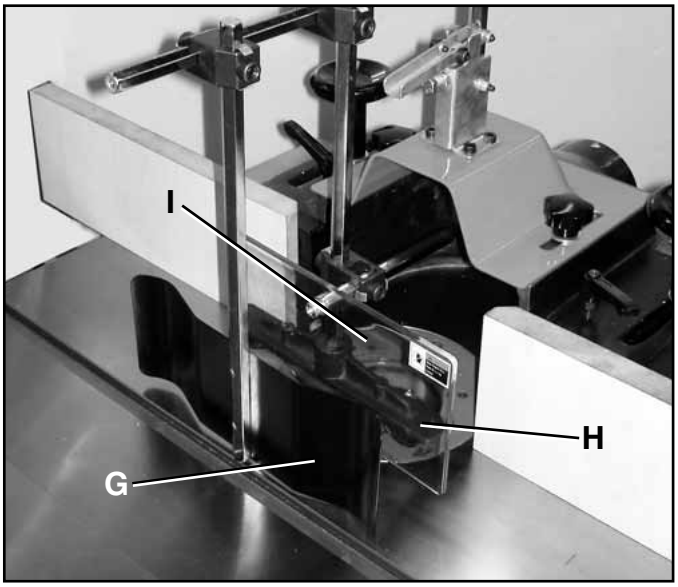
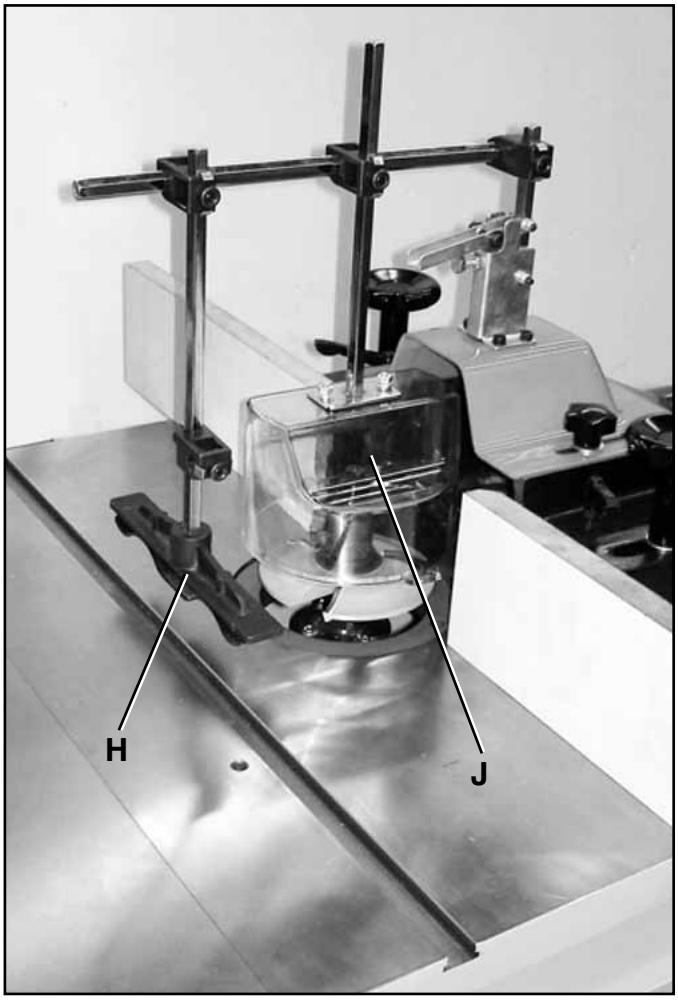


Fig. 20



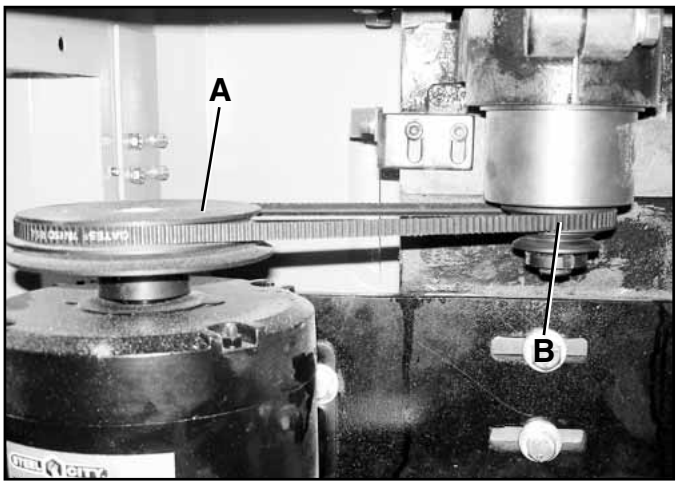
NOTICE: Guard segments will need to be repositioned for the operation being attempted. The guards should be as close as possible without interfering with the travel of the workpiece or cutter.

ADJUSTMENTS

CHANGING SPEEDS

This shaper is constructed with a 2 step pulley on both the motor pulley (A) and on the spindle pulley (B). This two step configuration allows for speeds of either 7,000 RPM or 10,000 RPM. With the belt on the larger step of the motor pulley and the smaller step on the spindle pulley, the spindle speed will be 10,000 RPM. Conversely, with the belt on the smaller step of the motor pulley and the larger step on the spindle pulley, the spindle speed would be 7,000 RPM. The belt can be moved from one step on the pulley to the other by simply walking the belt. **SEE FIG. 21.**

Fig. 21



⚠WARNING

The two settings listed above are the only combinations available for this shaper. **DO NOT** attempt to skew the belt so that it rides on either both small pulleys or both large pulleys. Doing so may result in damage to the machine and/or injury to the operator.

REVERSING SPINDLE ROTATION

The shaper is equipped with a switch (A) that controls which way the cutter spins. Turning the switch to left runs the cutter in the forward direction, while turning it to the right runs the cutter in the reverse direction. When the switch is positioned in the middle , as shown in Fig 22, this is the neutral position. **SEE FIG 22.**

⚠WARNING

DO NOT attempt to change the spindle rotation while the machine is running. Turn the machine “OFF” and wait for the spindle to come to a complete stop before changing the rotation.

RAISING AND LOWERING THE SPINDLE

The Spindle can be raised or lowered by loosening the stabilizer knob (B) and turning the handwheel (C). To raise the spindle height, turn the handwheel clockwise. To lower the spindle height, turn the handwheel counterclockwise. The adjustable scale (D) on the front of the shaper shows the height of the spindle and can be positioned to set your zero mark at multiple locations. Once the spindle is in the desired location you can stabilize the position by turning the knob (B) located on the side of the machine. **SEE FIG. 22.**

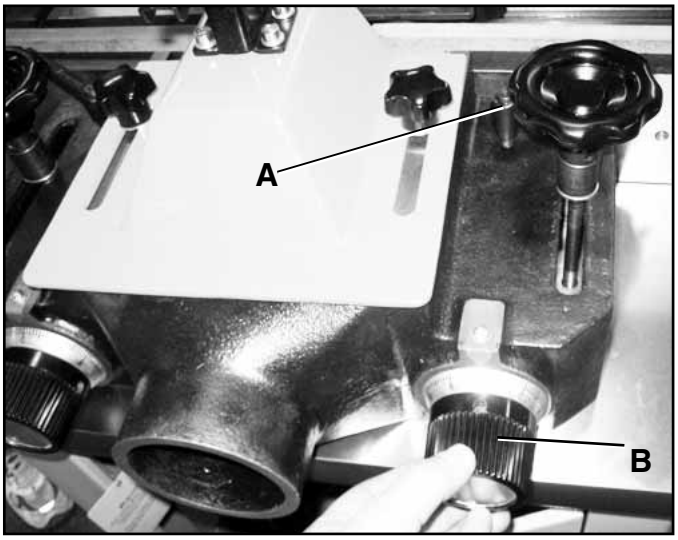
Fig. 22

FENCE POSITIONING

The two faces of the fence are independent of one another and can be set at different positions to allow for different shaping tasks. To adjust

1. Loosen lock lever (A). **SEE FIG 23.**

Fig. 23



2. Adjust the position of the fence by turning the adjustment knob (B)
3. When the fence is in the desired position, retighten the lock lever.
4. Repeat this process for the other side of the fence, if necessary.

NOTE: There are two sets of holes on the table top for attaching the fence. The most common set-up positions the fence so that it runs parallel to the miter slot. The fence can, however, be rotated 90° from the position by using the second set of holes in the table top.

BELT TENSION

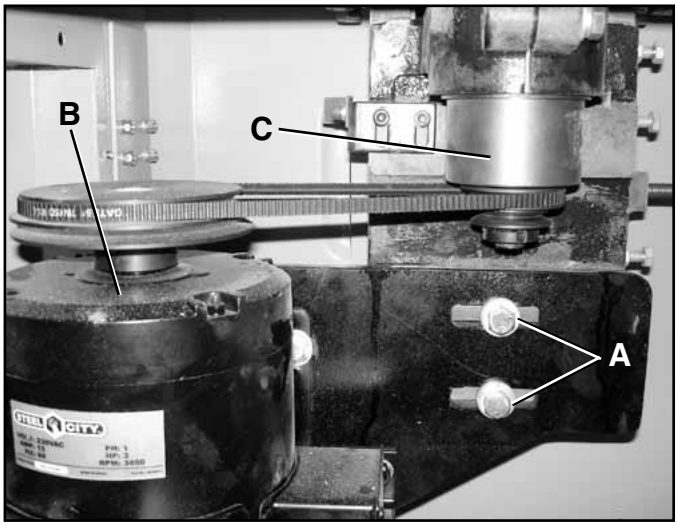
The belt tension is set at the factory and should not need adjustment on initial setup. The belt will need occasional adjustment as the belt will stretch over time. The belt should yield 1/4" of deflection when squeezed together at the midpoint. To adjust belt tension:

⚠WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

1. Loosen the two hex head bolts (A). **SEE FIG 24.**
2. Slide the motor and bracket assembly (B) away from the spindle cartridge (C) until the slack is removed from the belt.
3. Retighten the two hex bolts loosened in step 1.

Fig. 24

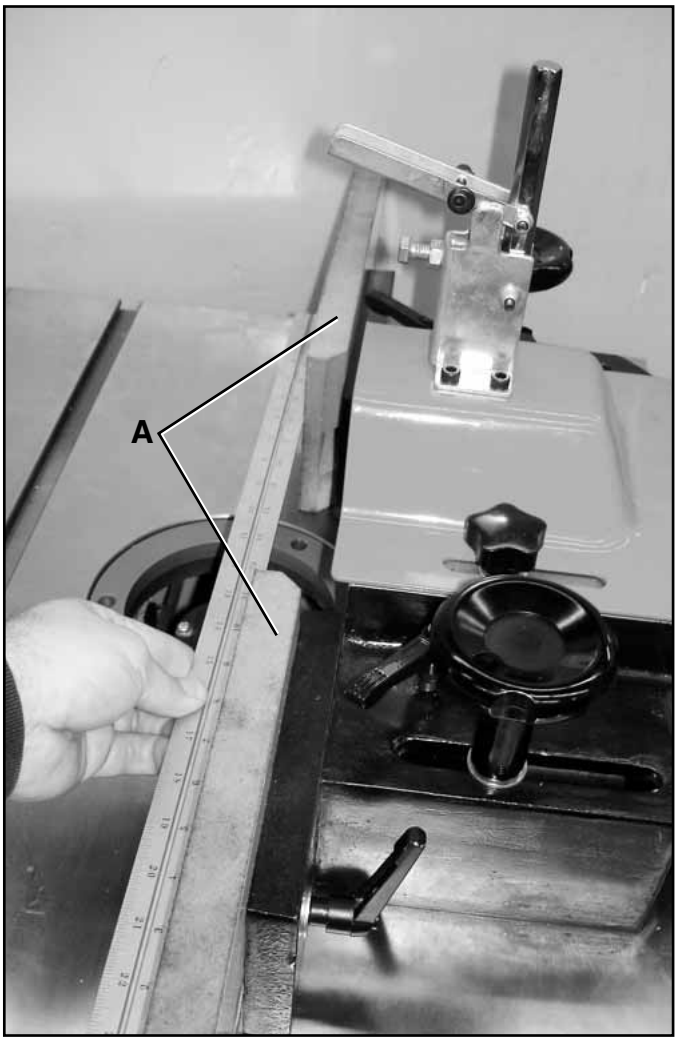


FENCE ALIGNMENT

Before using the shaper, it is important to make sure that the two fence faces are parallel. Use the following steps to ensure the parallelism of the two fence halves.

1. Use a straight edge that is long enough to span the length of the entire fence and position it up against both fence halves (A). **SEE FIG 25.**

Fig. 25



NOTE: Before placing the straight edge up against the fence, make certain that the fence lock knobs (B) are securely tightened.

2. Adjust the fence faces so that they are as close as possible to the same parallel position.

OPERATIONS

⚠ WARNING

MAKE CERTAIN THAT THE SHAPER IS DISCONNECTED FROM THE POWER SOURCE.

⚠ WARNING

ALWAYS wear eye protection. Any machine can throw debris into the eyes during operations, which could cause severe and permanent eye damage. Everyday eyeglasses are **NOT** safety glasses. **ALWAYS** wear Safety Goggles (that comply with ANSI standard Z87.1) when operating power tools.

⚠ WARNING

ALWAYS wear a NIOSH/OSHA approved dust mask to prevent inhaling dangerous dust or airborne particles.

NOTICE

The following section was designed to give instructions on the basic operations of this shaper. However, it is in no way comprehensive of every shaper application. It is strongly recommended that you read books, trade magazines, or get formal training to maximize the potential of your shaper and to minimize the risks.

SHAPING USING THE FENCE

Using the fence is the safest method of shaping. Most straight cuts that use the fence for support can be performed by following the guidelines below

1. If performing a cut where a portion of the workpiece is not touched by the cutterhead, both sides of the fence will be set at the same depth.
2. When performing a cut where the entire edge of the workpiece is removed, the fence must be positioned differently. If the fence halves are kept in line, once the workpiece passes through the cutterhead, the shaped edge would no longer be supported against the fence. To prevent this, the outfeed side of the fence must be positioned further out to compensate for the material being removed. Advance the outfeed side of the fence until it contacts the shaped edge of the workpiece.
3. If using a miter gauge, the infeed side of the fence **MUST** be parallel with the miter slot. Also make certain that the outfeed side of the fence is positioned out of the way so that it does not contact the workpiece after it passes through the cutterhead.

FREEHAND SHAPING

Freehand Shaping is shaping without the use of a miter gauge or fence. Beginning the cut is the most dangerous part of freehand shaping. Many times when the workpiece first contacts the cutter, the workpiece will tend to kickback or jerk, which can surprise the operator. To help reduce the frequency of these incidents and increase the safety aspect of freehand shaping, a starting pin is provided with your shaper. This pin will allow you to anchor and slowly pivot the workpiece into the cutter at the beginning of the cut. When freehand shaping, it is always best to use a template jig.

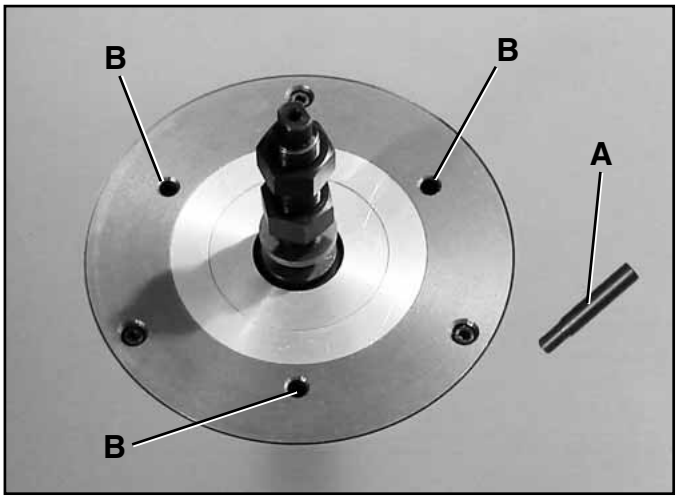
⚠ WARNING

Use **EXTREME** care when freehand shaping. With the fence removed, more of the cutter is exposed increasing the risk of injury.

To set up the shaper for freehand operation

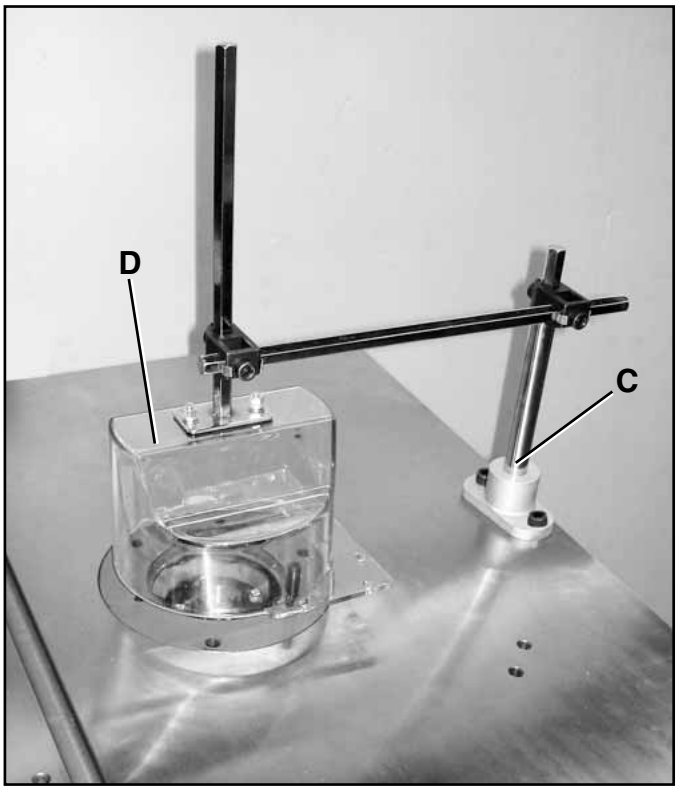
1. Remove the fence assembly from the shaper
2. Insert the starting pin (A) in the most suitable hole (B) on the table insert. **SEE FIG 26, page 29.**

Fig. 26



3. Attach the Mounting post (C) to the table using two provided socket head cap screws and attach overhead (D) guard to the post. **SEE FIG. 27.**

Fig. 27



4. Use a hold down jig or rubberized push blocks to support or guide the workpiece and help protect your hands from injury.
5. Place the workpiece against the starting pin.
6. Slowly pivot and feed the workpiece into the cutter. Try to avoid starting your cut on the corner of a workpiece to help reduce the risk of a kickback.
7. Once the cut is started, the workpiece should be pulled away from the starting pin.

USING COLLARS

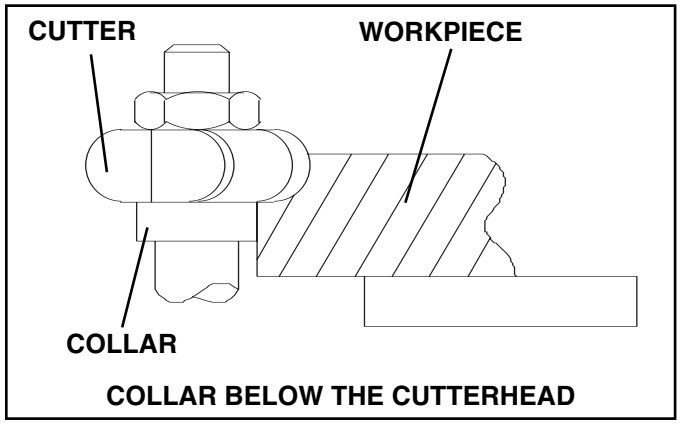
⚠ WARNING

When shaping workpieces that have irregular shapes, it is essential to use a collar. There are three basic types of setup for the collar. Each setup has it's advantages and disadvantages

Below the Cutter

The advantage of the collar being positioned below the cutter is that the user can see the progress of the cut. While this method provides a good view of the cut being made, the disadvantage is that any lifting of the workpiece, even slightly, will cause the cutter to gouge the wood and ruin the workpiece. **SEE FIG 28.**

Fig. 28



COLLAR BELOW THE CUTTERHEAD

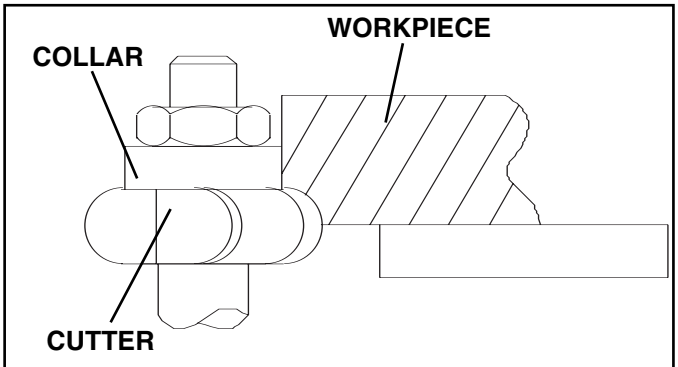
Above the Cutter

This type of setup is the safest of the three and produces the most consistent results. Two advantages of this setup are that

1. The cut will not be affected by slight variations in the thickness of the workpiece
2. The workpiece will not be gouged if you accidentally lift it off the table. If the workpiece lifts off the table, simply run it though the cutter again to produce a finished cut

The only disadvantage of this type of setup is that the user will not be able to see the cut being made as it will be on the underside of the workpiece. **SEE FIG. 29.**

Fig. 29

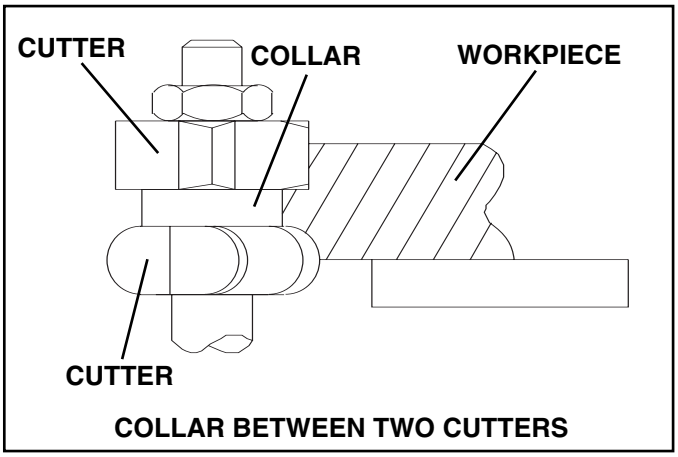


COLLAR ABOVE THE CUTTER

Between two Cutters

The advantage of this setup is that you can make two profile cuts in a single pass so it is frequently used when both edges of the workpiece are to be shaped. The disadvantage with this method, like the "Below the Cutter" method, is that any accidental lifting of the workpiece will cause gouging and ruin the workpiece. **SEE FIG. 30.**

Fig. 30



COLLAR BETWEEN TWO CUTTERS

MAINTENANCE

This shaper requires very little maintenance other than minor lubrication and cleaning. The following sections detail what will need to be done in order to assure continued operation of your shaper.

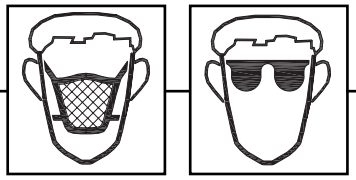
LUBRICATION

The shaper has sealed lubricated bearings in the motor housing and the arbor assembly that do not require any additional lubrication from the operator.

CLEANING

Keep the inside of the cabinet clear of saw dust and wood chips. With the shaper unplugged, vacuum out the inside of the cabinet or blow out the inside with an air hose. Be sure to use air pressure no higher than 50 P.S.I. as high pressure air may damage insulation.

⚠WARNING



Be sure to wear protective eyewear and dust mask when cleaning out the cabinet of the shaper.

MODEL 48115 ONLY

The tabletop is an unfinished metal surface that, over time, will accumulate rust if not properly cared for. When the shaper is not in use, keep a light coat of WD-40 on the table top as this will help prevent rust from occurring. If rust has already accumulated on the table, use WD-40 and a fine steel wool to get rid of the rust. Using a quality paste wax on the tabletop and wings is a good preventative measure to help prevent rust from forming.

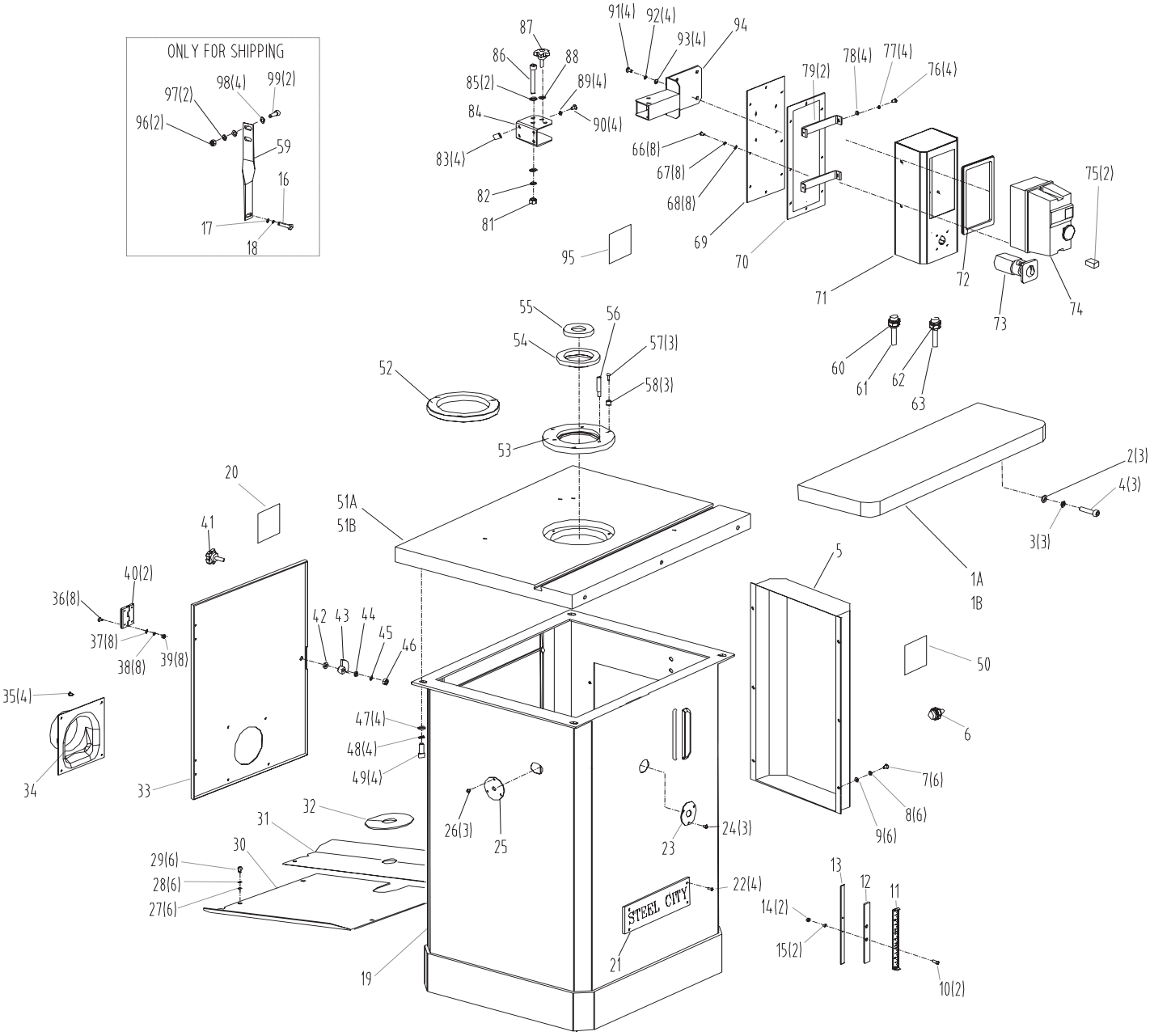
MODEL 48120 ONLY

The table top is designed to be maintenance free and, under normal shop conditions, the Titanium Nitrite (TiN) coating will minimize the chance of rust forming on the table top. While the distinctive gold color of your Steel City cast-iron top is an indication that the surface is protected against rust and corrosion, that protection does not diminish if the gold color is worn away by abrasion due to normal use over time. A paste wax may be applied to the table top to give it a shiny appearance.

TROUBLESHOOTING GUIDE

PROBLEM	LIKELY CAUSE(S)	SOLUTION
The shaper does not start or the breaker trips.	1. The supply circuit has low voltage, or high resistance. 2. The motor start capacitor is open or shorted. 3. Forward/reverse switch is in the neutral position.	1. If you are unqualified to test voltage, determine circuit loads, or rewire electrical connections, contact a qualified electrician. 2. Unplug the shaper and inspect the capacitor for oily residue, bubbled plastic, foul odor, and test and replace accordingly. 3. Make sure the switch is in the forward or reverse position.
The shaper runs slow.	1. The belt-to-pulley ratio is set to 7,000 RPM. 2. The extension cord used is the wrong gauge and has too much resistance, or the supply circuit has low voltage, or high resistance.	1. Unplug the shaper and move the belt to the 10,000 RPM pulley position. 2. Eliminate the extension cord and move the shaper closer to the wall receptacle. If you are unqualified to test voltage or determine circuit loads, contact a qualified electrician.
The drive belt tears or runs off of the shaper.	1. The belt tension is too low and the belt has run off of the pulley.	1. Increase the belt tension to prevent slippage. DO NOT over tighten the belt tension.
The shaper vibrates, the spindle is loose, or the cutter chatters.	1. The shaper is unstable and wobbles. 2. The spindle, cutter, or router bit spindle adapter is loose or out of alignment. 3. The shaper has a loose motor or spindle cartridge. 4. The motor or spindle cartridge bearings are at fault.	1. Stabilize the shaper with the floor, using shims. 2. Reinstall spindle, cutter, or router bit spindle adapter as outlined. 3. Unplug the shaper and carefully look for loose motor, motor mounts, spindle cartridge, or other parts. Tighten fasteners as required. 4. Replace bearings or spindle cartridge assembly as required.

PARTS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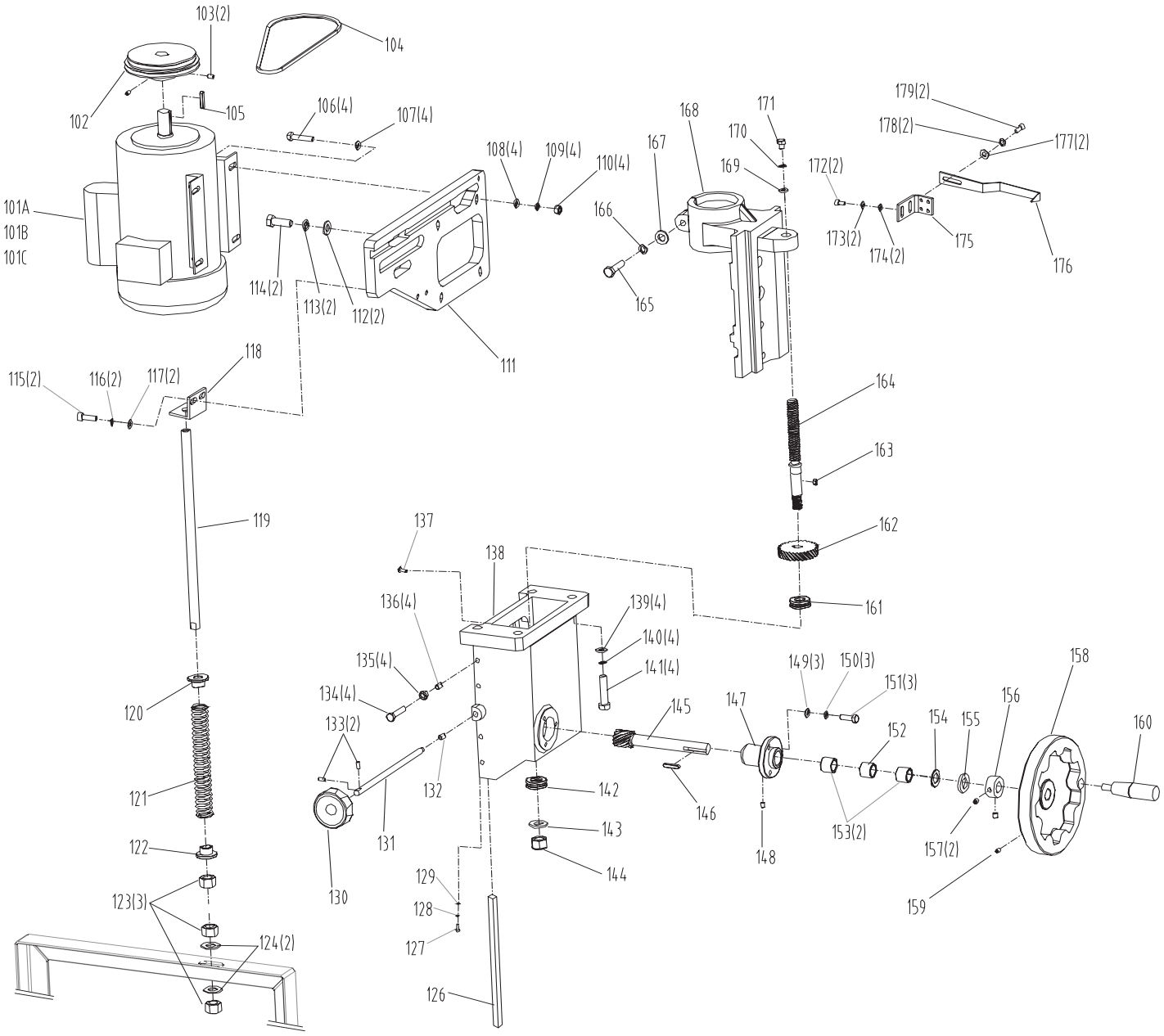
KEY NO.	PART NO.	DESCRIPTION	QTY.
1A	OR72106	EXTENSION WING	1
1B	OR72198	EXTENSION WING (TITANIUM FINISH)	1
2	OR90230	M10 FLAT WASHER	3
3	OR90227	M10 LOCK WASHER	3
4	OR94401	M10 x 35mm SOC HEAD CAP SCR	3
5	OR72107	SIDE COVER	1
6	OR94403	STRAIN RELIEF	1
7	OR90320	M6 X 12mm PAN HEAD SCREW	6
8	OR90502	M6 LOCK WASHER	6
9	OR90059	M6 FLAT WASHER	6
10	OR91776	M4 X 20mm PAN HEAD SCREW	2
11	OR73374	SCALE	1
12	OR73375	MAGNETIC STRIP	1
13	OR73376	SCALE STRIP	1
14	OR90078	HEX NUT M4	2
15	OR73377	SCALE PIN	2
16	OR90308	M8 x 20mm HEX BOLT	1
17	OR91499	M8 FLAT WASHER	1
18	OR91500	M8 LOCK WASHER	1
19	OR73378	STAND BODY	1
20	OR70321	SPEC PLATE	1
21	OR70484	NAME PLATE	1
22	OR93823	RIVET	4
23	OR72111	COVER	1
24	OR91828	M4.8 X 16mm PAN HEAD SELF TAPPING SCREW	3
25	OR72115	COVER	1
26	OR91828	M4.8 X 16mm PAN HEAD SELF TAPPING SCREW	3
27	OR90462	M5 FLAT WASHER	6
28	OR90145	M5 LOCK WASHER	6
29	OR90761	M5 X 10mm PAN HEAD SCREW	6
30	OR73379	FLOOR PANEL-1	1
31	OR73380	FLOOR PANEL-2	1
32	OR73381	FLOOR PANEL-3	1
33	OR73382	DOOR	1
34	OR73383	4” DUST PORT	1
35	OR90761	M5 X 10mm PAN HEAD SCREW	4
36	OR90863	M5 x 12mm PAN HEAD SCREW	8
37	OR90462	M5 FLAT WASHER	8
38	OR90145	M5 LOCK WASHER	8
39	OR91563	M5 HEX NUT	8
40	OR72117	HINGE	2
41	OR73384	DOOR LOCK HANDLE	1
42	OR94407	M8 THIN HEX NUT	1
43	OR73385	DOOR LOCK	1
44	OR91499	M8 FLAT WASHER	1
45	OR91500	M8 LOCK WASHER	1
46	OR91501	M8 HEX NUT	1
47	OR90230	M10 FLAT WASHER	4
48	OR90227	M10 LOCK WASHER	4
49	OR90777	M10 x 25mm SOC HEAD CAP SCR	4
50	OR72126	WARNING LABEL	1
51A	OR72120	TABLE	1
51B	OR72199	TABLE (TITANIUM FINISH)	1
52	OR72121	TABLE INSERT	1
53	OR72122	TABLE INSERT	1
54	OR72125	TABLE INSERT	1
55	OR72124	TABLE INSERT	1
56	OR72123	PIN	1
57	OR91756	M5 x 20mm HEX SOC HD SCR	3
58	OR94408	SCREW	3
59	OR73401	SHIPPING STRIP	1
60	OR73386	INSULATOR	1
61	OR73387	POWER CORD	1
62	OR73388	INSULATOR	1
63	OR73389	POWER CORD	1
65	OR73390	SWITCH ASSY CONST. OF;REF 66 TO REF 79	1
66	OR90761	M5 X 10mm PAN HEAD SCREW	8
67	OR90145	M5 LOCK WASHER	8
68	OR90462	M5 FLAT WASHER	8
69	OR73391	SWITCH’S BACK BOX	1
70	OR73392	SWITCH’S BOX WASHER	1
71	OR73393	SWITCH’S FRONT BOX	1
72	OR72109	SWITCH BOX GASKET	1
73	OR72112	FOR / REV SWITCH	1
74	OR72108	3HP MAGNETIC SWITCH	1
75	OR73394	PLASTIC BLOCK	2
76	OR91778	M5 X 16mm PAN HEAD SCREW	4
77	OR90145	M5 LOCK WASHER	4
78	OR90462	M5 FLAT WASHER	4
79	OR73395	SWITCH BRACKET	2
80	OR73396	SWITCH MOUNT ASSY CONST. OF REF 81 TO REF 94	1
81	OR90228	M10 HEX NUT	1
82	OR90227	M10 LOCK WASHER	1
83	OR73397	FLAT HEAD RIVETED NUTS	4
84	OR73398	SWITCH MOUNT BRACKET	1
85	OR90230	M10 FLAT WASHER	2
86	OR94815	M10 x 65mm HEX SOC HD SCR	1
87	OR73399	LOCK KNOB	1
88	OR91499	M8 FLAT WASHER	1
89	OR90502	M6 LOCK WASHER	4
90	OR91826	M6 X 16mm PAN HEAD SCREW	4
91	OR91826	M6 X 16mm PAN HEAD SCREW	4
92	OR90502	M6 LOCK WASHER	4
93	OR90059	M6 FLAT WASHER	4
94	OR73400	SWITCH SUPPORT BRACKET	1
95	OR72127	WARNING LABEL	1
96	OR91501	M8 HEX NUT	2
97	OR91500	M8 LOCK WASHER	2
98	OR91499	M8 FLAT WASHER	4
99	OR93381	M8 x 20mm HEX SOC HD SCR	2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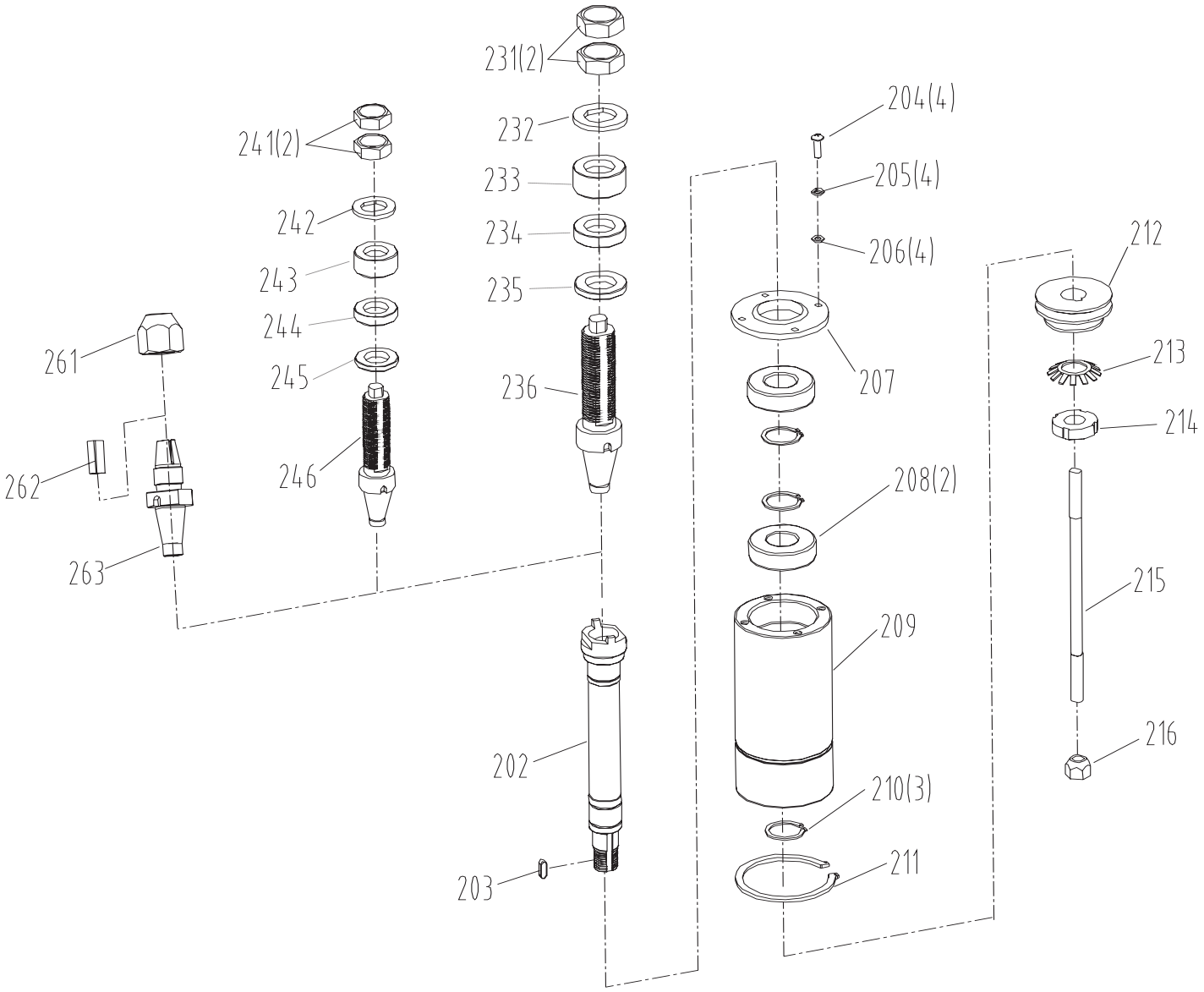
KEY NO.	PART NO.	DESCRIPTION	QTY.
101A	OR70426	MOTOR (3HP,230VAC,15AMP,1 PHASE)	1
101B	OR70373	MOTOR SPEC PLATE	1
101C	OR72129	CAPACITOR	1
102	OR72130	MOTOR PULLEY	1
103	OR90222	M6 x 10mm HEX SOC SET SCREW	2
104	OR72131	BELT	1
105	OR94409	4.76mm x 4.76mm x 32mm KEY	1
106	OR93891	M8 x 40mm HEX BOLT	4
107	OR94816	M8 BIG FLAT WASHER	4
108	OR94816	M8 BIG FLAT WASHER	4
109	OR91500	M8 LOCK WASHER	4
110	OR91501	M8 HEX NUT	4
111	OR72132	MOTOR MOUNT PLATE	1
112	OR90230	M10 FLAT WASHER	2
113	OR90227	M10 LOCK WASHER	2
114	OR93546	M10 x 40mm HEX HEAD BOLT	2
115	OR93381	M8 x 20mm HEX SOC HD SCR	2
116	OR91500	M8 LOCK WASHER	2
117	OR91499	M8 FLAT WASHER	2
118	OR72135	SUPPORT PLATE	1
119	OR72136	SUPPORT PIN	1
120	OR72133	SUPPORT WASHER	1
121	OR94410	SPRING	1
122	OR73402	SUPPORT WASHER	1
123	OR90499	M16 HEX NUT	3
124	OR94413	M16 FLAT WASHER	2
126	OR72138	GIB	1
127	OR94821	M5 X 8mm HEX SOC HD SCR	1
128	OR90145	M5 LOCK WASHER	1
129	OR90462	M5 FLAT WASHER	1
130	OR72137	LOCK KNOB	1
131	OR72139	LOCK KNOB SHAFT	1
132	OR73403	GIB BLOCK 2	1
133	OR92193	M5 x 6mm HEX SOC SET SCREW	2
134	OR90308	M8 x 30mm HEX BOLT	4
135	OR91501	M8 HEX NUT	4
136	OR73404	GIB BLOCK 1	4
137	OR91786	M5 X 25mm PAN HEAD SCREW	1
138	OR72140	ELEVATION HOUSING	1
139	OR90304	M12 FLAT WASHER	4
140	OR93912	M12 LOCK WASHER	4
141	OR93526	M12 x 45mm HEX HEAD SCREW	4
142	OR94412	THRUST BEARING (51203)	1
143	OR94413	M16 FLAT WASHER	1
144	OR93922	M16 x 1.5 NYLOK NUT	1
145	OR72141	WORM SHAFT	1
146	OR90219	5mm x 5mm x 30mm KEY	1
147	OR72142	SHAFT MOUNT	1
148	OR94414	M6 x 5mm HEX SOC SET SCREW	1
149	OR91499	M8 FLAT WASHER	3
150	OR91500	M8 LOCK WASHER	3
151	OR91752	M8 x 25mm HEX BOLT	3
152	OR72143	BUSHING	1
153	OR72144	BUSHING	2
154	OR94415	COPPER FLAT WASHER	1
155	OR94416	WAVE WASHER	1
156	OR72145	SLEEVE	1
157	OR91816	M6 X 8mm SETSCREW	2
158	OR72146	HANDWHEEL	1
159	OR91764	M5 x 10mm HEX SOC SET SCREW	1
160	OR72147	HANDLE	1
161	OR94412	THRUST BEARING (51203)	1
162	OR72148	GEAR	1
163	OR94061	5MM x 5mm x 10mm KEY	1
164	OR72149	ELEVATION LEAD SCREW	1
165	OR91746	M10 x 45mm HEX HEAD BOLT	1
166	OR90227	M10 LOCK WASHER	1
167	OR90230	M10 FLAT WASHER	1
168	OR72152	SPINDLE SLIDE	1
169	OR94816	M8 BIG FLAT WASHER	1
170	OR91500	M8 LOCK WASHER	1
171	OR94817	M8 x 15mm HEX BOLT	1
172	OR93372	M6 x 12mm SOC HEAD CAP SCREW	2
173	OR90502	M6 LOCK WASHER	2
174	OR90059	M6 FLAT WASHER	2
175	OR73404	POINTER MOUNT	1
176	OR73405	POINTER	1
177	OR90059	M6 FLAT WASHER	2
178	OR90502	M6 LOCK WASHER	2
179	OR93371	M6 x 10mm HEX SOC HD SCR	2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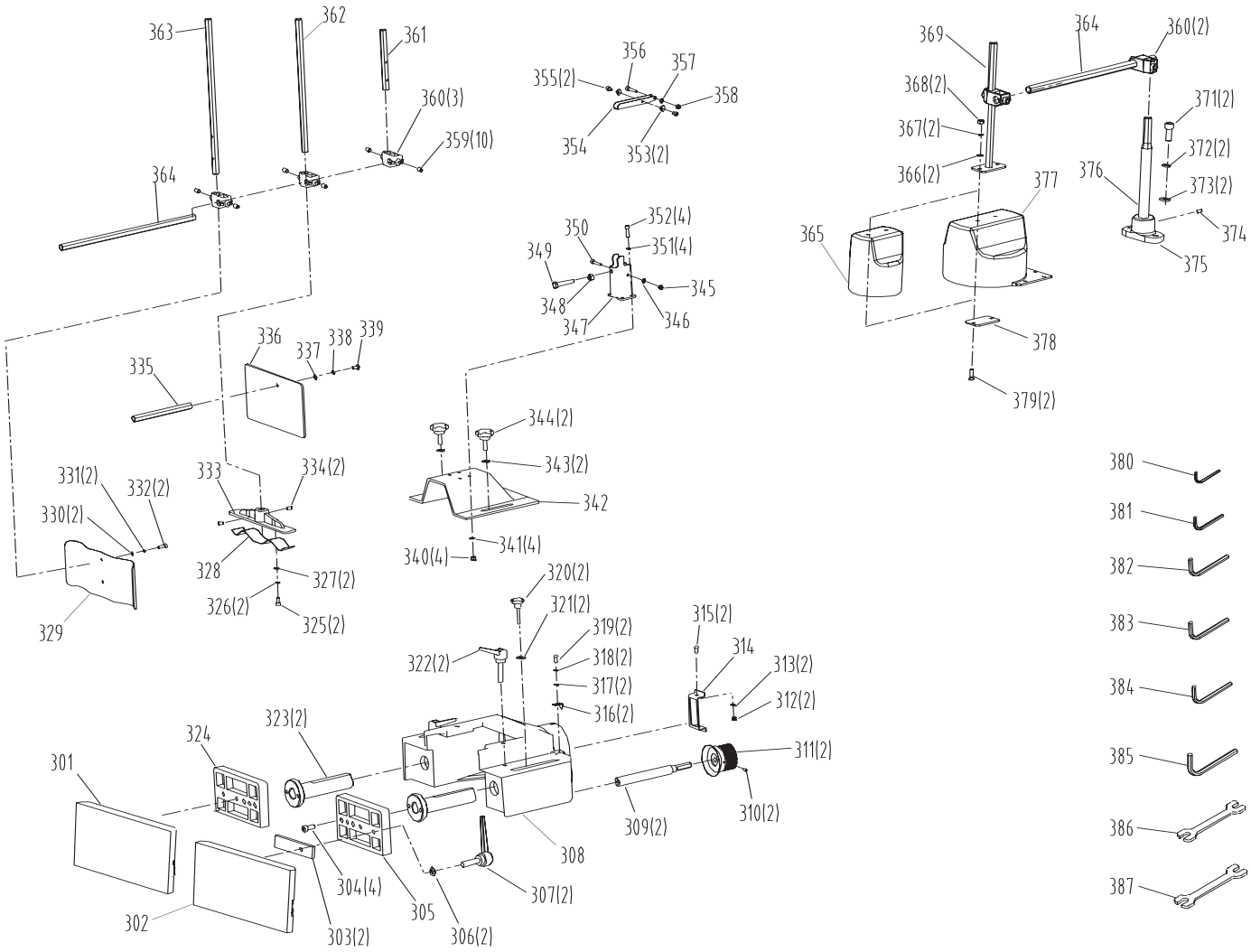
KEY NO.	PART NO.	DESCRIPTION	QTY.
201	OR73418	SPINDLE CARTRIDGE ASSY CONST. OF ; REF 202 TO REF 216	1
202	OR73406	SPINDLE CARTRIDGE	1
203	OR91824	5mm x 5mm x 15mm KEY	1
204	OR91777	CROSS RECESSED PAN HEAD M5x15	4
205	OR90145	M5 LOCK WASHER	4
206	OR90462	M5 FLAT WASHER	4
207	OR72155	FLANGE	1
208	OR94418	BEARING (6205-2Z)	2
209	OR72156	HOUSING	1
210	OR94419	SNAP RING	3
211	OR94420	SNAP RING	1
212	OR72157	PULLEY	1
213	OR73407	SPANNER NUT WASHER	1
214	OR73408	SPANNER NUT	1
215	OR73409	DRAW BAR	1
216	OR72159	DRAW NUT	1
230	OR73419	1" SPINDLE ASSY CONST. OF; REF 231 TO REF 236	1

KEY NO.	PART NO.	DESCRIPTION	QTY.
231	OR72161	1" SPINDLE NUT	2
232	OR72162	1" SPINDLE WASHER	1
233	OR73410	1" SPACER (1" SPINDLE)	1
234	OR73411	1/2" SPACER (1" SPINDLE)	1
235	OR73412	1/4" SPACER (1" SPINDLE)	1
236	OR73413	1" SPINDLE	1
240	OR73420	3/4" SPINDLE ASSY CONST. OF; REF 241 TO REF 246	1
241	OR72166	3/4" SPINDLE NUT	2
242	OR72167	3/4" SPINDLE WASHER	1
243	OR73414	1" SPACER (3/4" SPINDLE)	1
244	OR73415	1/2" SPACER (3/4" SPINDLE)	1
245	OR73416	1/4" SPACER (3/4" SPINDLE)	1
246	OR73417	3/4" SPINDLE	1
260	OR73421	ROUTER BIT SPINDLE ASSY CONST. OF; REF 261 TO REF 263	1
261	OR72206	ROUTER BIT CAP	1
262	OR73422	1/4" ROUTER BUSHING	1
263	OR73423	ROUTER BIT BODY	1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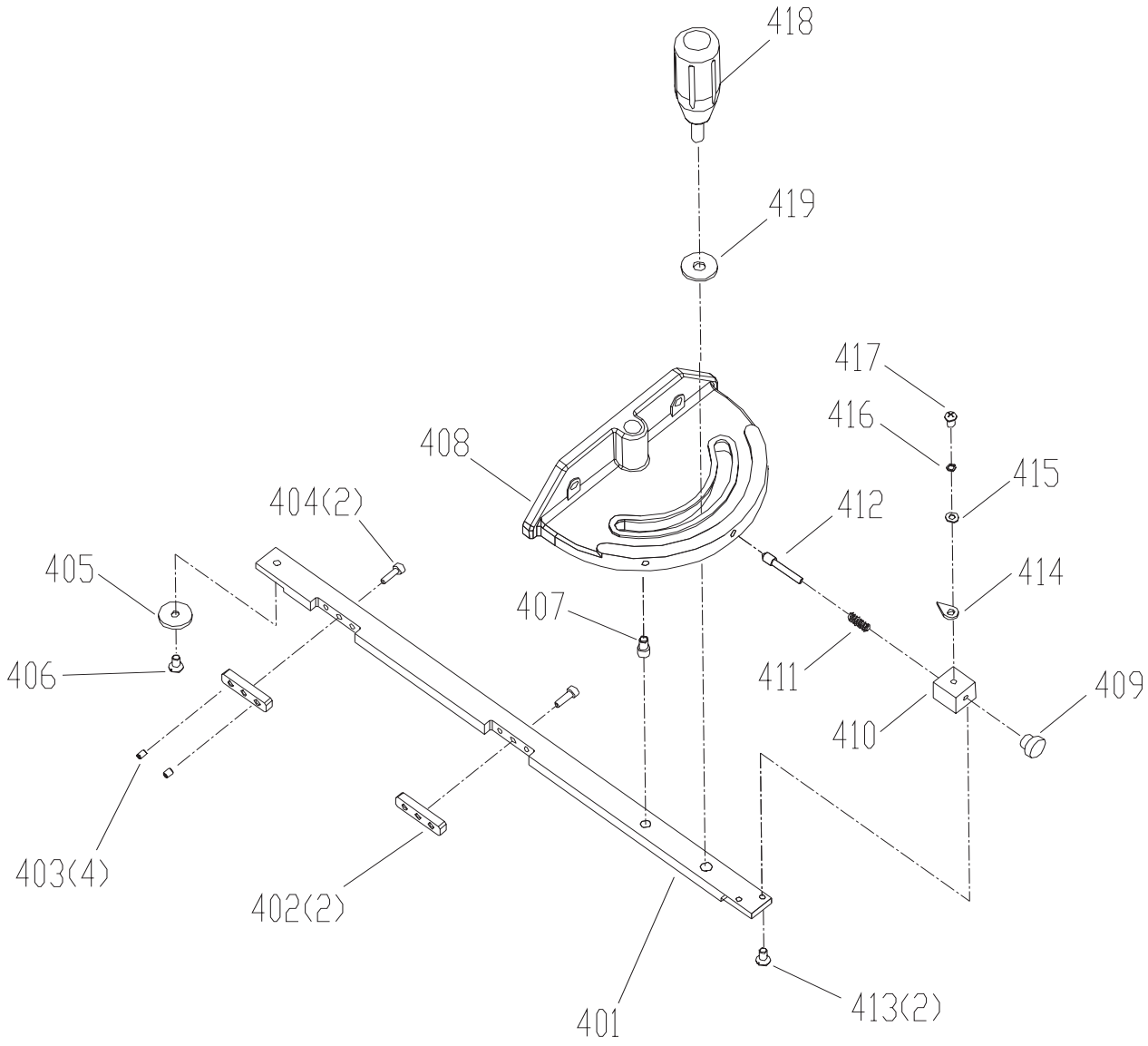
KEY NO.	PART NO.	DESCRIPTION	QTY.
300	OR73440	48106 FENCE ASSY CONST. OF ; REF 301 TO REF 379	1
301	OR73424	RIGHT WOOD FENCE ASSY	1
302	OR73425	LEFT WOOD FENCE ASSY	1
303	OR73426	GUIDE	2
304	OR91806	M8 X 25mm HEX SOC HD SCR	4
305	OR72171	FENCE BLOCK	1
306	OR91499	M8 FLAT WASHER	2
307	OR73427	LOCK LEVER	2
308	OR72174	HOOD	1
309	OR72175	ADJUSTMENT SCREW	2
310	OR94818	M6 X 10mm HEX SOCKET SET SCREWS WITH CUP POINT	2
311	OR72176	ADJUSTMENT KNOB	2
312	OR93903	M5 LOCK NUT	2
313	OR90462	M5 FLAT WASHER	2
314	OR73427	STRIP	1
315	OR91805	M5 X 20mm CROSS RECESS COUNTERSUNK HEAD SCREW	2
316	OR72177	POINTER	2
317	OR90462	M5 FLAT WASHER	2
318	OR90145	M5 LOCK WASHER	2
319	OR90761	M5 X 10mm PAN HEAD SCREW	2
320	OR72178	LOCK HANDLE	2
321	OR94819	M10 EXTRA BIG FLAT WASHER	2
322	OR72179	LOCK LEVER	2
323	OR72173	RAM	2
324	OR72172	FENCE BLOCK	1
325	OR93372	M6 x 12mm SOC HEAD CAP SCREW	2
326	OR90502	M6 LOCK WASHER	2
327	OR90059	M6 FLAT WASHER	2
328	OR72180	HOLD DOWN GUIDE	1
329	OR72189	GUIDE	1
330	OR90462	M5 FLAT WASHER	2
331	OR90145	M5 LOCK WASHER	2
332	OR90877	M5 x 12mm SOC HEAD CAP SCREW	2
333	OR72181	HOLD DOWN	1
334	OR91816	M6 x 8mm HEX SOC SET SCREW	2
335	OR72182	HORIZONTAL BAR	1
336	OR72183	GUARD	1
337	OR90059	M6 FLAT WASHER	1
338	OR90502	M6 LOCK WASHER	1
339	OR90306	M6 x 20mm PAN HEAD SCREW	1
340	OR94425	M6 NYLOK HEX NUT	4
341	OR90059	M6 FLAT WASHER	4
342	OR72190	PLATE	1
343	OR94820	M8 EXTRA BIG FLAT WASHER	2
344	OR72191	KNOB	2
345	OR94428	M5 NYLOK HEX NUT	1
346	OR90462	M5 FLAT WASHER	1
347	OR72192	BRACKET	1
348	OR91501	M8 HEX NUT	1
349	OR94008	M8 x 45mm HEX HEAD BOLT	1
350	OR94427	M5 x 30mm SOC HEAD CAP SCREW	1
351	OR90502	M6 LOCK WASHER	4
352	OR91812	M6 x 20mm SOC HEAD CAP SCREW	4
353	OR72193	CAM WASHER	2
354	OR73428	CHANNEL	1
355	OR94279	M5 x 10mm SOC HEAD CAP SCREW	2
356	OR90847	M5 X 25mm HEX SOC HD SCR	1
357	OR90462	M5 FLAT WASHER	1
358	OR94428	M5 NYLOK HEX NUT	1
359	OR93913	M8 x 12mm HEX SOC SET SCREW	10
360	OR72184	BLOCK	5
361	OR72185	VERTICAL BAR	1
362	OR72186	VERTICAL BAR	1
363	OR72187	VERTICAL BAR	1
364	OR72188	HORIZONTAL BAR	1
365	OR73429	3.5 INCH GUARD	1
366	OR90059	M6 FLAT WASHER	2
367	OR90502	M6 LOCK WASHER	2
368	OR90235	M6 HEX NUT	2
369	OR73430	GUARD BAR	1
371	OR93908	M10 x 30mm HEX SOC HD SCR	2
372	OR90227	M10 LOCK WASHER	2
373	OR90230	M10 FLAT WASHER	2
374	OR73431	HEX SOCKET SET SCREWS WITH CUP POINT	1
375	OR73432	SHAFT MOUNT	1
376	OR73433	SHAFT	1
377	OR73434	6 INCH GUARD	1
378	OR73435	GUARD BAR WASHER	1
379	OR94009	M6 X 20mm FLAT HEAD SCREW	2
380	OR90289	2.5mm HEX WRENCH	1
381	OR90804	3mm HEX WRENCH	1
382	OR90805	4mm HEX WRENCH	1
383	OR91728	5mm HEX WRENCH	1
384	OR91729	6mm HEX WRENCH	1
385	OR90807	8mm HEX WRENCH	1
386	OR90050	10mm/12mm OPEN END WRENCH	1
387	OR94429	14mm/17mm OPEN END WRENCH	1
388	OR72908	27mm/30mm OPEN END WRENCH	1
389	OR73448	30mm/32mm OPEN END WRENCH	1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KEY NO.	PART NO.	DESCRIPTION	QTY.
400	OR73439	MITER GAUGE ASSY CONST OF REF 401 TO REF 419	1
401	OR73449	MITER BAR	1
402	OR73450	ADJUST GLIDE PAN	2
403	OR90056	M4 X 6mm HEX SOC SET SCREW	4
404	OR92717	M4 X 14mm HEX SOC HD CAP SCREW	2
405	OR73451	SPECIAL WASHER	1
406	OR93926	M5 X 8mm FLAT HEAD SCREW	1
407	OR73452	MITER GAUGE PIN	1
408	OR73453	MITER GAUGE BODY	1
409	OR73454	PIN MITER GAUGE KNOB	1
410	OR73455	PIN MITER GAUGE SUPPORT	1
411	OR73456	SPRING	1
412	OR73457	PIN-MITER-GAUGE	1
413	OR93928	M4 X 20mm FLAT HEAD SCREW	2
414	OR73458	POINTER MITER GAUGE	1
415	OR90079	M4 FLAT WASHER	1
416	OR90077	M4 LOCK WASHER	1
417	OR90346	M4 X 8mm PAN HEAD SCREW	1
418	OR73459	KNOB-MITER	1
419	OR73460	BIG WASHER	1
500	OR73436	MANUAL (NOT SHOWN)	1
501	OR73437	MANUAL FRENCH (NOT SHOWN)	1
502	OR73438	MANUAL SPANISH (NOT SHOWN)	1

◆ NOTES ◆

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5 Year Warranty